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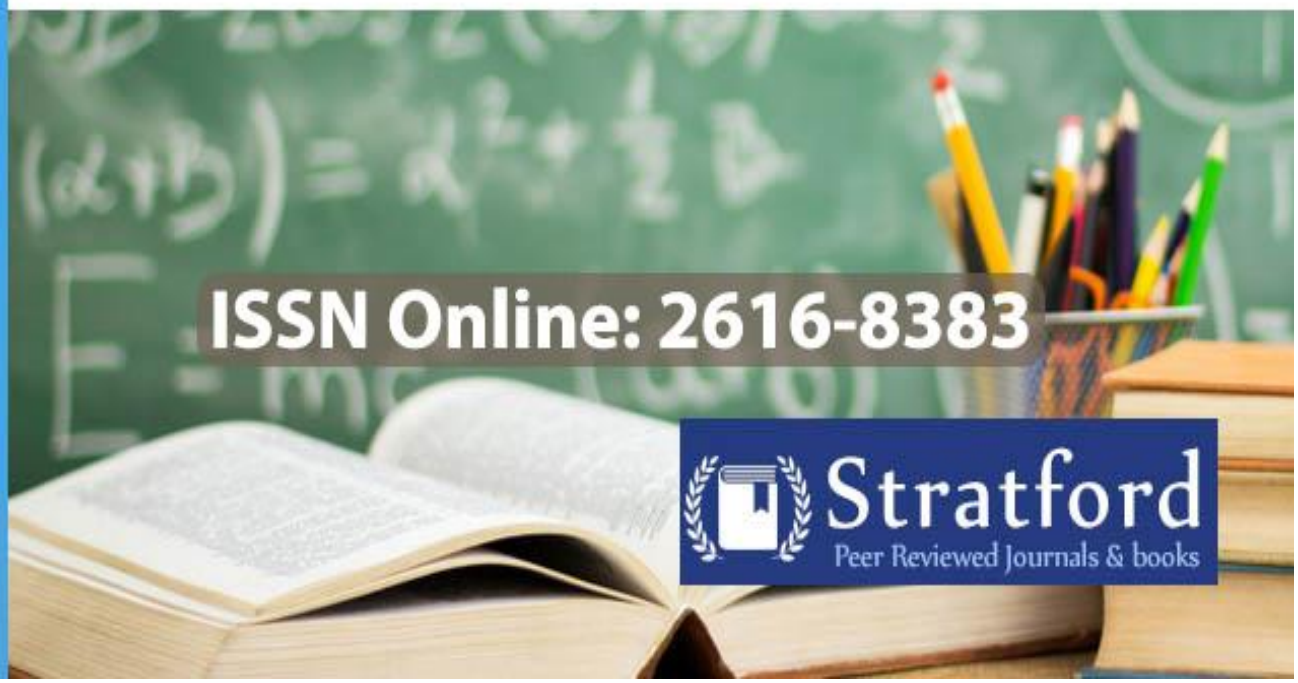

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Teaching and Learning Resource Usage and Academic Performance of Visually Impaired Students in Basic Education Schools of Rwanda

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Abstract

The effective usage of resources in teaching and learning especially among students having visual impairment improves the academic performance and enhances the completion of basic education. The purpose of this study therefore sought to find out the relationship between teaching and learning resources usage for visually impaired students and their academic performance basic education in Nyaruguru District in Rwanda. The study employed descriptive correlational analysis with a sample of 5 school administrators, 125 untrained teachers, 34 trained teachers, 186 visually impaired pupils and 5 librarians. The study employed a descriptive correlational analysis with a sample of 5 school administrators, 125 untrained teachers, 34 trained teachers, 186 visually impaired pupils, and 5 librarians. The study utilized a mixed-method approach, with respondents and key informants chosen through purposive and random sampling. Slovin's technique yielded a research sample of 188 respondents. The data was analyzed using the Statistical Package for the Social Sciences (SPSS). The findings revealed that 84.7% strongly agreed that they use braille; 84.8% strongly agreed that they use the slate and stylus; 72.9% strongly agreed that they use the orbit reader; 51.0% strongly agreed that they use cubes and cuberythms; and 85.7% strongly agreed that they use plastic papers and drawing boards in their learning as a visually impaired student. It was also noted that 72.4% strongly agreed that students with visual impairments should sit for a second sitting; 91.8% strongly agreed that the number of repeats among students with visual impairments is high due to inadequate materials. Furthermore, the study indicated that there is a statistical significant positive relationship between teaching and learning resources usage for visually impaired students and their academic performance basic education in Nyaruguru District in Rwanda. The study recommends that educational institutions should have access to knowledge resources such as qualified teachers, up-to-date and sufficient computer and internet infrastructures upkeep and renovation of physical places of confinement, supply of appropriate library resources. Government intervention should be limited in the oversight of colleges and universities by boards of trustees; academic freedom and autonomy among institutions must be upheld. MINEDUC should supply for both public and private institutions the material that is able to be used by visually impaired students and give training to the teacher on how to use those materials.

Keywords*:* *Teaching and learning resources, Basic education, Visual impairment and students' performance.*

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1.0 Introduction

The American Foundation for the Blind is a nationwide charitable organization that provides educational courses, resources, rehabilitation, and adapting training. The Chicago Lighthouse Consulting offers a low-vision the hospital, as well as opportunities for personal independence and employment. The Helen Keller Educational assistance for those who are blind offers college preparatory classes, training, and job placement assistance. The National Association of Blind Individuals links students to professional development opportunities in the state where they live. According to AAF (American Action Fund for the Blind children and adults logo) In ancient times, visually handicapped people were not seen as essential members of the prehistoric cultures in which they lived. In numerous civilizations, blind newborns were abandoned and allowed to pass away. a few years later some blind men were enslaved into slavery, blind women were sold into prostitution as well, and some were exploited for entertainment, but the majority were retained with their households, while others lived as street beggars. By the Middle Ages, civilised cultures, particularly in Europe, began to assume that it constituted society's role to care for the "less wealthy" particularly the blind. Since 1784, the first educational institutions for the blind were established in France and after, other improvements of education for the visually impaired people were done up to now (James, 2019)

In 1990, the educational opportunities for all (EFA) movement were established at the global Education for All Conference in Jomtien, Thailand. Ensure that every kid, young person, and adult enjoy the right to education. A discussion after the announcement of the organization's goal was once more reiterated at the global education. Many developing countries of Africa and Asia look people with disabilities including blind people like cursed or punished persons due to their sins or the sins committed by their families. Such thoughts and opinions no solely to demoralize disabled people but additionally to deny individuals the opportunity to engage in social and economic endeavours such as schooling and finding employment. Despite advances in surgical care, cataracts remain the most common cause of VI and blindness globally in countries that are both developed and developing. As individuals live lives that are longer, the proportion of persons with cataracts is projected to rise. Congenital eye diseases such as cataracts are one of the leading causes of blindness among children.

In Saudi Arabia, cataracts were shown to be the leading cause of VI in the northern and southern regions. Uncorrected Refractive index Errors (URE) are the major cause of visually impaired people and also the second largest cause of avoidable blindness worldwide, but according to additional recent research, URE is regarded as the primary culprit in the development of VI. In Saudi Arabia, URE has been identified as the primary contributory factor of VI in older individuals in Northern Saudi Arabia and the most prevalent cause of VI in adolescents in Qassim Province. Recent research in Saudi Arabia have found an increased incidence of RE in Jazan and Al Hassan (Farhan. 2018). A forum conference in Dakar (Senegal) was planned in order to evaluate efforts towards providing educational institutions for everyone. UNESCO's 2015 document "The Right to Education for Persons with Disabilities" states that no individual should be prevented access to educational opportunities due to disabilities. Therefore, access to education should be addressed as a comprehensive challenge with special attention to marginalized groups to which the visually

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impaired people belong. According to a World Health Organization (WHO) report published in 2012, one out of every 100 persons in Rwanda is visually impaired. According to the world's health organization (WHO), the country's current population of people with visual impairments is around 400,000. Only two establishments in the nation specialize in teaching students with visual impairments. HVP Gatagara located in Rwamagana district Eastern and Educational Institute for Blind Children in Kibeho located in Southern province, Nyaruguru district.

Visually impaired pupils in Rwanda have no understanding of the benefits they might obtain from the worldwide web, but they feel that having access to it would provide them with more possibilities for a good education. VI said: "We have a lot of publications at school but we can't take them home as others do our request is to turn them into audios and make them accessible to allow us to use them in our studying" this means that the visually impaired learners are still having challenges (Tamru, 2015). Rwanda highly recognizes the rights of child. One of them is education. In ensuring equality and quality of education to all, Rwanda is implementing inclusive education. (Education, 2014) Inclusive education calls for methods and strategies that may enable all students including those with visual impairments to acquire the planned competences. Even while success is dependent on independence and self-reliance, it is also critical to utilize existing resources. Find companions on the journey you're on. There are several non-governmental organizations that advocate for handicapped people. Here are some resources for visually challenged students: (education, 2014)

Rwanda Federation of the Blind now has 52 widely recognized branches spread over 25 of the country's 30 districts. The organization has around 2500 members, despite the fact that Rwanda has over 57,000 blind persons, according to the Fourth Rwanda Population and Housing Census of 2012. According to the census, 446,453 people aged 5 and above in Rwanda have impairments. There were 225,303 females and 221,150 men. All of the aforementioned branches, especially the headquarters in Kigali City and the Nyarugenge District in Nyabugogo, are run by visually challenged persons who are mainly concerned with advocating for the betterment of individuals with visual impairments (Topafrica News, 2021). RUB is an affiliated organization of Rwanda's National Union of Disabilities Organizations (NUDOR). It also has connections with the African Union of the Blind (AFUB) and the World Blind Union (WBU). RUB seeks funding to purchase Orbit Reader Mobile devices for Blind and Visually Impaired The students in Rwanda, a call for increased Braille understanding, improving the provision of technical and vocational education for visually impaired people, and how the one that powers the "Dinner in the Dark" taught those who participated about the lives of people with visual impairments. RUB asks for VIP respect while Rwanda celebrates international relations. White Cane Day (Top Africa News, 2021).

Schools for the blind lacked enough Braille writing equipment as well as Braille textbooks. Most of the Braille literature available consisted of texts transcribed into Braille by teacher while training for the students was of a low level (minister of education, science, technology and scientific research). For a long time, access to secondary and tertiary level of education was extremely limited for student with disabilities, especially those with visual impairment. For instance, students with visual impairment had no access to secondary schools' education until 1996. Before this time visually impaired students were not allowed to sit for the end of primary examinations that would

have allowed them to join secondary schools. After completing primary schools, many visually impaired students returned to their home or became the beggars. A few managed to get training in massage techniques and were thus able to find employment. It was only in 1996 that the first Learners having visual impairments were allowed to sit for the primary leaving examinations and thus to join secondary schools in Rwanda. Eight visually impaired learners became the first to enter secondary school in Rwanda in 1997. It was not until 2008 that the first visual impaired student gained admission to Rwandan universities (Lewis, 2019). Nowadays UNESCO established ICT policy in capacity- building for helping visually impaired learners, with the motto of "Education for all" and "special inclusive education "in many African countries, A number of governments prioritise providing participants with appropriate instructional and educational resources (Tamru, 2015).

1.1 Statement of the Problem

The process of instruction and comprehension is the task of the teacher uses different methods and strategies to make them effective. The methods used in teaching visually impaired students are special due to their difficulties in learning. There are some challenges in teaching visually impaired students including lack of trained teachers about braille skills, teaching aids, braille textbooks, insufficient time for the students to complete their work (Panthi, 2017). Students with visual impairment may face challenges when working on the mathematics standards in the common cores state standards (CCSS). In this area (Geometry) visually impaired students deal with points, lines, shapes spaces and other geometric shapes like spheres, cubes and circle. This study relies heavily on the visual presentation of shapes and their relationship in space which is very difficult for the students with visual impairment.

Rwanda, a nation that is striving to promote special education, has several obstacles such as an inflexible curriculum, unsuitable interpersonal interaction, inadequate and hazardous surroundings, insufficiently and properly qualified instructors, and classrooms that are crowded, besides others. Rwanda's visually impaired have alleged mistreatment including discrimination, not sending them to school thinking that they are not able to study, even those who studied have failed to get jobs. Sometimes, when a blind person is employed, they are forced to bear the burden of buying expensive software. It is the responsibility of every employer to cater for the needs of their employees regardless of their disability (Suzan, 2017). Inadequate and expensive materials like braille text books and braille machines are among the challenges in teaching and learning process for bind children as the inclusive education is still being a problem because many schools accommodate students but they do not provide what they need and special schools are very rare in Africa.

The use of teaching aids is also another challenge because many teachers meet many difficulties in adaptation content by linking with teaching aids in the educational and teaching process is very necessary so as to make the lesson to be understood for visually impaired student, the teaching aids are mostly based on those for touching and auditory. They are not enough to make the lesson to be more understandable (Panthi, 2017). Moreover, the time given to blind students in following ordinary curriculum is insufficient. Because teacher should take into account all individual

difficulties and make sure that teacher's aides are effective to all. He/ she facilitates and guides students where they are not able to move on. All those challenges said above prove that blind students need much more time to accomplish their given tasks (Suzan L. , 2017). Furthermore, the problem of accomodating Students with visual impairments lack adequate teaching and learning resources. affect their academic performance to the great extent. It was experienced that the students from many inclusive schools finish primary school or even the ordinary level without knowing how to read and write due to the lack of trained teachers and teaching and learning resources which are perfect for them (EIBC. 2021) .

1.2 Objective of the study

The objective of this study was to find out the relationship between teaching and learning resources usage for visually impaired students and their academic performance basic education in Nyaruguru District in Rwanda.

2.0 Literature Review

The literature review is discussed in sections.

2.1 Effectiveness of teaching and learning resources usage for visually impaired students

The objective of Teaching Students without Visual difficulties is to provide blind or visually impaired educators the tools they need to support every student in becoming a productive member of their community. It also aims to provide resources to those working in the field of visual impairments so they can better meet the varied needs of the students they work with. To function efficiently in the classroom, Students with visual impairments may require a variety of specific materials and instruments. These include braille or large print books, audiocassettes, screen reader/speech synthesizer, optical character recognition software, electronic braille writers, print-to-braille software, braille printer or embosser, cassette recorder, slate and stylus, braille Perkins, talking calculators, orbit reader, cubes and cuberythms, braille papers among others.

2.2 Level of performance among visually impaired students in basic education schools

Education in all regions of the world has emerged as the primary facilitator of ever-increasing understanding, resulting in beneficial human and system progress (Gambo et al., 2018). The educational system fosters the most advantageous environment for effective education, innovation, and the development of the human resources required for a knowledge-based economy of tomorrow. Consequently, less focus is made to building acceptable surroundings for the disabled (for example, visually handicapped) to efficiently study in basic education institutions in Rwanda, particularly because there is an insufficient number of professionals prepared to teach those with visual impairments kids (Pauline, 2013). Students with visual impairments find it difficult to study and perform well academically. Students learn from their teachers essentially by listening to them and examining their notes or the appropriate resources. Students with good vision gain by listening to their professors and reading. Students with visual impairment, on the other hand, typically

struggle with reading due to impaired vision. Students with visual impairments and students with good vision do not read precisely the same rate.

In Nyaruguru's fundamentally equipped classrooms, impaired students rely on their capacity to listen to solely speech to obtain knowledge fast and effectively to improve learning. Unfortunately, there is no adequate provision of teaching and learning resources for these pupils to enjoy and learn productively alongside their non-visually impaired friends. (Otylo, 2017). Furthermore, the educational system expects all types of learners to achieve well. Children with this condition rely on their capacity to hear or listen to solely speech in order to obtain information fast and effectively for learning. This is because the visually challenged are unable to see, whereas others possess insufficient vision to interpret every written word. To achieve this objective, a system should be implemented to provide a synthesised vocal representation of the text for an engaging study, hence encouraging student engagement (Garrison and Kanuka, 2014; Hew and Brush, 2017).

2.3 Relationship between teaching and learning resources usage for visually impaired students and their academic performance

Blind or visually impaired students' performance is dependent on their accessibility and use of various instructional and educational tools. Several research have been conducted on materials for instruction and academic achievement among students with visual impairments. For example, Isola (2016) investigated the consequences of teaching utilization of resources on how students performed in West African school examinations in Kwara state. He linked tangible assets to pupils' academic achievement in the subjects that they were taught. Subject teachers provided information about the resources were used in the learning environment. The successful performance of students in the West African secondary school certificates examinations over the last five years was influenced by the resources available to instructors for each topic. He determined that material resources have an important influence on students' performance across each subject (Isola O.M, 2016). Similarly, Moronfola (2018) conducted study in Ilorin, a local government region in Kwara state. then employed questionnaires for gathering information regarding the material resources available to instructors for some selected subjects in ten secondary schools, and then compared these against pupil accomplishment in each topic and the quantity of resources available for taught the subject. The findings revealed a substantial relationship between physical assets and achievement in school in these topics (Moronfola B., 2018)

2.4 Availability and usage of teaching and learning resources for visually impaired students

Learning and instruction resources are critical for successful learning. These resources for a learner with a visual impairment contain appropriate objects such as tactile and embossing materials that are relevant, easily accessible, and user pleasant. Lack of educational resources may also result in educators with visual impairment being more recipients from knowledge since they are lacking the ability to communicate with their surroundings or learn via discovery, which has a detrimental effect on educators with visual impairment (Williams, 2019). A research investigation was undertaken in Spain with the goal of analysing the implementation of the inclusion procedure for students experiencing visual impairments. The study discovered that schools lack suitable

instructional and educational materials to help children with visual disabilities learn more effectively in inclusive classes. Furthermore, the survey discovered that parents do not collaborate or participate in the development of their kids educational concerns. Furthermore, the data demonstrated that teachers lack adequate knowledge about inclusion and how they can educate children with vision. To teach students with visual impairments, instructions must be adequately planned and delivered by qualified staff. One of the credentials that educators must have is an understanding of the background in regular schooling, which includes technique for teaching academic subjects and skills such as reading, arithmetic, and other subject matter. Second, the teacher must acquire modifications to the curriculum procedures, as well as customized method of instruction and resources for visually impaired learners (Lamichhane, 2017.)

2.5 Teaching and learning resources usage and academic performance.

Several researches have been carried out conducted on instructional and educational resources, as well as educational achievement among students with visual impairments. For example, Isola (2016) investigated the impact of educational materials on how students performed in the West African school test in Kwara state. He linked material resources to pupils' academic achievement in the subjects they were taught. Subject-matter instructors provided information about the resources they used in the classroom. The successful performance of students in West Africa's educational institutions certificate examinations over the last five years was related to the resources available to instructors for each topic. He determined that material resources have a considerable effect on how well students do in all of the subjects. Similarly, Moronfola (2018) conducted study in the Ilorin local government region of Kwara State. Then employed questionnaires to collect information relating to the material resources available to be used for teaching various selected subjects in a possible ten secondary educational institutions, and then compared these to student achievement in each topic and the quantity of resources available for teaching it. The findings demonstrated a substantial relationship between resources for learning and participants' academic achievement in these courses.

2.6 Adaptation along with the advancement of resources

Teacher assistants are frequently in charge of developing or improving resources that students are going to employ in the classroom. When creating resource materials for students, specific thought is required. Producing these tools is a vital role for teachers' aides, as is supporting pupils throughout their use and comprehension. Silberman's (2019) study of creating children with vision impairments in inclusive educational settings found that all teachers claimed to use teaching resources. They stated that they are extremely helpful for children with visual impairments. The difficulty is the wide range of educational resources and the knowledge required to use them. Teachers claimed to use instructional materials, but they are rarely available. The study's findings suggested that educational opportunities for students with visual impairments might be successfully implemented if sufficient resources for instruction were accessible (Silberman, 2019). Pauline (2013) stated that using and adapting instructional materials to meet the requirements of students with vision impairments in inclusive educational environments is critical. She also stated that instructional professionals do not use instructional resources since they are not available. The

results of this study coincide with the beliefs that relevant educational resources for students with visually impaired classmates are not accessible to everyone partly because of insufficient budget.

3.0 Research Methodology

The study employed a descriptive correlational analysis with a sample of 5 school administrators, 125 untrained teachers, 34 trained teachers, 186 visually impaired pupils, and 5 librarians. The study utilized a mixed-method approach, with respondents and key informants chosen through purposive and random sampling. Slovin's technique yielded a research sample of 188 respondents. The data was analyzed using the Statistical Package for the Social Sciences (SPSS), version 21.0, to generate descriptive statistics such as frequency, percentage, mean, and standard deviation.

4.0 Findings

The findings of this study were presented based on the objective of the study, which was to examine the relationship between the usage of teaching and learning resources for visually impaired students and their academic performance in basic education in Nyaruguru District, Rwanda. The association between the variables was also presented.

4. 1 The effectiveness of teaching and learning resources usage for visually impaired students in basic education schools of Nyaruguru district

The research determines evaluate the effectiveness of Learning and instruction resources usage for visually impaired students in basic education schools of Nyaruguru district.

Table 1: Visual impaired students' perception on teaching and learning resources usage for visually impaired students in basic education schools of Nyaruguru district

Statements	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
Students use braille machines in their learning as visually impaired students.	0	0.0	1	1.0	6	6.1	8	8.2	83	84.7	1.536	1.171
Students use the slate and stylus in their learning as a visually impaired student.	0	0.0	1	1.0	4	4.1	5	5.1	88	89.8	1.503	1.171
Students use the orbit reader in their learning as a visually impaired student.	1	1.0	1	1.0	11	11.2	14	14.3	71	72.4	1.537	1.17
Student use cubes and cuberythms in their learning as a visually impaired student.	2	2.0	0	0.0	9	9.2	37	37.8	50	51.0	1.537	1.17
Students use plastic papers and drawing boards in their learning as a visually impaired student.	1	1.0	3	3.1	4	4.1	6	6.1	84	85.7	1.543	1.21

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Results in Table 1 reports the perception of visually impaired students on the effectiveness of teaching and learning resource usage for visually impaired students in basic education schools in Nyaruguru district, Rwanda. Accordingly, 83 (84.7%) strongly agreed that they use braille machines in learning as visually impaired students; 83 (84.8%) strongly agreed that they use the slate and stylus in their learning as a visually impaired student; 71 (72.9%) strongly agreed that they use the orbit reader in their learning as a visually impaired student; 50 (51.0%) strongly agreed that they use cubes and cuberythms in their learning as a visually impaired student; and 84 (85.7%) strongly agreed that they use plastic papers and drawing boards in their learning as a visually impaired student. As shows, visually impaired students in Nyaruguru district, Rwanda, overwhelmingly use braille machines, slates and stylus, orbit readers, cubes and cuberythms, plastic papers, and drawing boards for learning, with a majority of them using these resources for effective teaching and learning. According to (Gambo, 2021) a learning framework for impaired students in universities in underdeveloped countries. A one-way interactive medium is created by combining human-like behaviour with a computer programme. Students, instructors, specialised education professionals, and technical experts were all participating in the study. The prototype system converts texts into voice and synthesises speech representations to help in learning. The test findings revealed that people preferred high-quality material, clarity, attractiveness, and responsiveness.

Table 2: Untrained teacher 's Perception towards teaching and learning resources usage for visually impaired students

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
Use of braille machines indicates teaching and learning resource usage for visually impaired students.	0	0.0	0	0.0	3	3.1	6	6.1	57	86.4	1.400	1.057
Use of the slate and stylus indicates teaching and learning resource usage for visually impaired students.	1	1.5	1	1.5	7	10.6	10	15.2	47	71.2	1.344	1.051
Use of the orbit reader indicates teaching and learning resource usage for visually impaired students.	0	0.0	1	1.5	2	3.0	3	4.5	60	90.9	1.400	1.068
Use of cubes and cuberythms indicates teaching and learning resource usage for visually impaired students.	0	0.0	2	3.0	7	10.6	18	27.3	39	59.1	1.466	1.072
Use of plastic papers and drawing boards indicates teaching and learning resource usage for visually impaired students.	1	1.5	1	1.5	2	3.0	8	12.1	54	81.8	1.411	1.140

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According to the data in Table 2, 54 (81.8%) strongly agreed that the use of plastic papers and drawing boards reflects the utilisation of teaching and learning resources by visually impaired pupils. 39(59.1%) Strongly agreed that the use of cubes and cuberythms implies instructional and educational resource utilisation for visually impaired pupils, 60 (90.9%) strongly agreed that use of the orbit reader indicates teaching and learning resource usage for visually impaired students. 72 (80.0%) strongly agreed that the use of cubes and cuberythms indicates the dropout of my colleagues' secondary school students. 47 (71.2%) strongly agreed that the use of the slate and stylus indicates teaching and learning resource usage for visually impaired students. shows that 81.8% of untrained teachers strongly agree that the use of plastic papers, drawing boards, cubes, orbit readers, grade retentions, and slate and stylus are effective teaching resources for visually impaired students, with a significant percentage indicating dropout rates. According to Munsanje (2016), most Zambian schools lack suitable learning resources for students with visual impairments, and many lack resource rooms and enough funds. As a result, academic performance suffers, and students are compelled to drop out of science and mathematics classes. To ensure excellent materials and successful instruction, the report recommends enhanced infrastructure, procurement methods, efficient distribution, and teacher training.

4. 2 The level of performance among visually impaired students in basic education schools of Nyaruguru district

This study identified the level of performance among visually impaired students in basic education schools of Nyaruguru district.

Table 3: Visual impaired students' perception on the level of performance among visually impaired students in basic education schools of Nyaruguru district

Statements	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
student with visual impairments, pass at first sitting.	0	0.0	1	1.0	4	4.1	9	9.2	84	85.7	1.434	1.025
The number of repeats among students with visual impairments is high due to inadequate materials.	0	0.0	1	1.0	3	3.1	4	4.1	90	91.8	1.342	.883
student with visual impairments, sit for a second sitting.	1	1.0	1	1.0	11	11.2	14	14.3	71	72.4	1.477	1.056
Few students with visual impairments repeat the year	0	0.0	2	2.0	8	8.2	19	19.4	69	70.4	1.677	1.175

According to the information depicted in Table 3, 69 (70.4%) strongly agreed. Few students with visual impairments repeat the year: 71 (72.4%) Strongly agreed that Students with visual impairments should sit for a second time (91.8%). Strongly agreed that the number of repeats among Students with difficulties with vision is high due to inadequate materials, and 84 (85.7%)

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Strongly agreed that students with visual impairments pass at first sitting. This above result determines the level of academic performance in learners with visual impairments, demonstrating that children with visual impairments frequently repeat the year, with a high number of repeats due to inadequate materials, and 84 (85.7%) passes at first sitting. According to Karangwa (2018) Rwanda's Nine-Year Basic Education (9YBE) programme seeks to provide free primary and secondary education to all students, particularly those from underprivileged backgrounds. Visually impaired students (VIS), on the other hand, suffer from low academic achievement, notably in science and mathematics. Research done at HVP Gatagara-Rwamagana underlines the necessity for alternative solutions that focus on the failure of the school and education system to provide necessary modifications and enabling conditions.

Table 4: Trained Teachers 's Perception towards the level of performance among visually impaired students in basic education schools of Nyaruguru district

Statements	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
Many pupils with vision impairment pass at their first sitting.	0	0.0	0	0.0	1	5.6	3	16.7	14	77.8	1.422	1.016
The number of second sittings among students with visual impairments is low.	0	0.0	1	5.6	2	11.1	3	16.7	12	66.7	1.455	1.040
Many pupils with vision impairment sit for a second sitting.	0	0.0	0	0.0	1	5.6	5	27.8	12	66.7	1.733	1.234
Few students with visual impairment repeat the year.	0	0.0	0	0.0	0	0.0	1	5.6	17	94.4	1.577	1.199

According to Table 4, 94.4% strongly agreed that few students with visual impairment repeat the year, whereas 66.7% strongly agreed that many students with visual impairment sit for a second sitting, 66.7% strongly agreed that the number of second sittings among students with visual impairment is low, and 77.8% strongly agreed that many students with visual impairment pass at the first sitting.(Nasiforo, 2019) conducted a study to look at the academic obstacles that students with vision impairments confront at the University of Rwanda's colleges. The study focused on the adequacy of teaching techniques, the capacity of lecturers to adapt to available resources, the promotion of inclusive learning by administrative personnel, and the influence of orientation and mobility on learning. The findings revealed that the curriculum, learning tools, and exams had not been modified to accommodate students with visual impairments. Staff development was also limited, and children with visual impairments received no orientation or mobility training. The study suggested that seminars and workshops be funded in order to enhance teaching methods and the campus atmosphere.

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4.3 The relationship between teaching and learning resources usage for visually impaired students and their performance.

Table 5 presents the study results on the correlation between teaching and learning resources usage for visually impaired students and their performance in Nyaruguru District.

Table 5: Correlation between teaching and learning resources usage for visually impaired students and their performance in Nyaruguru District

		Use of braille machine	Use of slate and stylus	Use of orbit reader	Use of cubes and cuberythms	Use of plastic papers and drawing board	Fluency of braille reading	Improved writing using computer	Improved numeracy	Effective use of braille language
Use of braille machine	Pearson Correlation	1.000								
	Sig. (2-tailed)									
	N	186								
Use of slate and stylus	Pearson Correlation	.387**	1.000							
	Sig. (2-tailed)	.000								
	N	186	186							
Use of orbit reader	Pearson Correlation	.180**	.426**	1.000						
	Sig. (2-tailed)	.005	.000							
	N	186	186	186						
Use of cubes and cuberythms	Pearson Correlation	.212**	.363**	.296**	1.000					
	Sig. (2-tailed)	.001	.000	.000						
	N	186	186	186	186					
Use of plastic papers and drawing board	Pearson Correlation	.069	.046	.066	.059	1.000				
	Sig. (2-tailed)	.287	.482	.307	.362					
	N	186	186	186	186	186				
Fluency of braille reading	Pearson Correlation	.781**	.251**	.133*	.134*	.027	1.000			
	Sig. (2-tailed)	.000	.000	.023	.038	.672				
	N	186	186	186	186	186	186			
Improved writing using computer	Pearson Correlation	.805**	.270**	.145*	.165*	.887**.	030	1.000		
	Sig. (2-tailed)	.000	.000	.025	.011	.000	.638			
	N	186	186	186	186	186	186	186		
Improved numeracy	Pearson Correlation	.855**	.276**	.122	.136*	.031	.865**	.885**	1.000	
	Sig. (2-tailed)	.000	.000	.059	.036	.637	.000	.000		
	N	186	186	186	186	186	186	186	186	
Effective use of braille language	Pearson Correlation	.693**	.309**	.073	.708**	.675**	.760**	.748**	.695**	1.000
	Sig. (2-tailed)	.000	.000	.023	.000	.000	.000	.000	.000	
	N	186	186	186	186	186	186	186	186	186

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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Findings from Table 5 indicate A strong relationship was established between fluency of braille reading and the following statements: use of braille machine (r =.781**, p-value = 0.000), use of slate and stylus (.270**, p-value = 0.000), and use of orbit reader (.133*, p-value =0.023). The connection is positive since the p-value was smaller than 0.05., explaining that the fluency of braille reading affects the use of a braille machine, the use of a slate and stylus, the use of an orbit reader, the use of cubes and cuberythms, the use of plastic papers and a drawing board, and vice versa. For improved writing using a computer A strong relationship was established with the use of the braille machine (r =.805**, p-value = 0.000), the use of slate and stylus (.251**, p-value = 0.000), and the use of the orbit reader (.145*, p-value =0.025). Verbal abuse: (r = 165*p-value = 0.000). The connection is positively associated since the p-value was less than 0.05, indicating that fluency of braille reading is affected by the use of a braille machine, the use of a slate and stylus, the use of an orbit reader, the use of cubes and cuberythms, the use of plastic papers and a drawing board, and vice versa. For effective use of braille language, a strong relationship was established with the use of braille machines (r =.693**, p-value = 0.000), the use of slate and stylus (r =.309**, p-value = 0.000), the use of orbit readers (r =.073*, p-value =0.025), and the use of plastic papers and drawing boards (r =.887**; p-value = 0.000). The connection is positively associated since the p-value was less than 0.05, indicating that Fluency of braille reading affects the use of a braille machine, the use of a slate and stylus, the use of an orbit reader, the use of cubes and cuberythms, the use of plastic papers and a drawing board, and vice versa. The study conducted by Guanoluisa (2022) looks at general instructors' teaching approaches in inclusive educational environments for visually impaired children. It had been shown that instructors had little awareness about inclusive education and how it may be applied to all kids with special needs. Special needs instructors provide educational materials, read braille, and train visually impaired students. However, ordinary instructors lack this understanding owing to obstacles such as a teacher shortage, a lack of commitment, a scarcity of resources, and a rigid curriculum. The report suggests government training, funding for inclusive schools, and further research on the subject. The findings emphasise the importance of more inclusive teaching approaches and additional study in this area.

5.0 Summary of findings

The objective of this paper was to find out the relationship between teaching and learning resources usage for visually impaired students and their academic performance basic education in Nyaruguru District in Rwanda. It was noted visually impaired students' performance significantly influenced by the use of braille machines, the use of slates and styli, the use of orbit readers, the use of cubes and cuberythms, and the use of plastic papers and drawing boards. This relationship is positive, as the p-value is less than 0.05. Improved writing using computers also has a strong relationship with the use of braille machines, the use of slates and styli, the use of orbit readers, and the use of cubes and cuberythms. Effective use of braille language also shows a strong relationship with the use of a braille machine, the use of a slate and stylus, the use of an orbit reader, the use of cubes and cuberythms, as well as the use of plastic papers and a drawing board. Nzoka (2019) conducted research and examined how Kibos Special Secondary School's special education programme for visually impaired pupils may benefit from the use of contemporary assistive technologies. It was discovered that analogous assistive technology which is cumbersome, sluggish, and ineffective was the most often utilized. Computers, iPads, and tablets were the next most popular assistive

technologies, behind braille machines. The report suggested that the Ministry of Education acknowledge the ways assistive technology may help students who are blind or visually impaired learn, provide schools with up-to-date technology, and provide instructors with the tools they need to make sure their pupils are computer literate**.**

6.0 Conclusion

The study concludes that there was a positive and statistically significant correlation between the performance of visually impaired students in Nyaruguru District and their use of teaching and learning resources, with the majority of these correlations being greater than 0.05.** The use of braille machines, slates and styli, orbit readers, cubes and cuberythms, and plastic papers and drawing boards were all found to have a significant positive impact on the academic performance of visually impaired students. Additionally, the study found a strong relationship between improved writing using computers and the use of braille machines, slates and styli, orbit readers, and cubes and cuberythms.** The effective use of braille language also demonstrated a strong relationship with the use of braille machines, slates and styli, orbit readers, cubes and cuberythms, as well as plastic papers and drawing boards.

7.0 Recommendations

Basing on the presented findings and drown conclusion, the recommendations were addressed:

- Educational institutions should have access to knowledge resources such as qualified teachers, up-to-date and sufficient computer and internet infrastructures upkeep and renovation of physical places of confinement, supply of appropriate library resources.
- Government intervention should be limited in the oversight of colleges and universities by boards of trustees; academic freedom and autonomy among institutions must be upheld.
- MINEDUC should supply for both public and private institutions the material that is able to be used by visually impaired students and give training to the teacher on how to use those materials.

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REFERENCES

Aditya, M. (2022). This study was focused to explore the relationship among emotional intelligence and self-efficacy of visually impaired. *Internatonal Journal of creative Research and thought*.

Alexandre, P. (2020). Influence of school dropout rate on teachers and students academic perfomance. *Jornal de Pediatria*.

Anthony, K. (2013). An Analysis on Dropout Levels of Public Secondary Schools in Kericho District in Relation to Selected School Characteristics. *International Education Studies; Vol. 6, No. 7; 2013*. https://doi.org/10.5539/ies.v6n7p247

Berwal, S. (2017). Effect of Gender, Degree of Impairment and Type of School on the Mental Health of Visually Impaired Students. *International Journal Of Special Education 32, No.4, 2017*.

Claude, N. J. (2016). The causes of school dropout in nine years' basic Education In Rwanda . *Journal of Marriage and Family,58, 773-783.*

Eduaction, M. O. (2014). *Science and technology.* Nairobi: longmsn.

Education, M. O. (2015). *Eduatin sector strategic plan* . Kipali.

Education, M. O. (2014). *science and technology and scientific research.* Nairobi: Longman.

Escardíbul, J. O. (2018). Labor markets, academic performance and school dropout risk: evidence for Spain. *International Journal of Manpower ISSN: 0143-7720*.

Farhan (2018). Global prevalence and causes of visual impairment with special reference to the general population of Saudi Arabia. *National library of medecine*, 751-756.

Gambo, O. (2021). Planning Effective Learning for the Visually Impaired in Federal University in Osun State, Nigeria: Technology Perspective. *Malaysian Online Journal of Educational Technology 2021 (Volume 9 - Issue 1)*. https://doi.org/10.17220/mojet.2021.9.1.250

Ghulam, S. (2015). Impact of visual Aids in Enhancing the learning process. *Journal of Education and Practice*, 2222-1735.

Guanoluisa, F. (2022). Visually Impaired Students' and Their Teacher's Perceptions of the English Teaching and Learning Process. *MEXTESOL Journal, Vol. 46, No. 4, 2022*.

Isola.O.M. (2010). *Effects of standardized and improved instructional materials students'academic achievements in secondary school physics.* London: Kenyatta university management.

James. R. (2019). *The relationship of personel Preparation to the comptence of Teachers of studentswith visual impairments.* New York: Cambridge university.

Kanimab. (2022, june monday). vision. (rugaju, Interviewer)

Karangwa, E. (2018). Plights of learners with Visual Impairments in Rwandan science classes: Evidencing teachers' practice in HVP Gatagara . *Rwandan Journal of Education Volume 1 Issue 2*.

Komolafe, A. F. (2020). Assistive Technology and Learning Outcome of Students with Visual Impairment in Social Studies among Inclusive Schools in Nigeria. *Journal of Education Research and Rural Community Development*.

Lamichhane. (2017). *the meaning of scientific research methodology.* kigali: Butare National university.

Larry.B.C (2014). *Research design.* New York: prentice Hall.

Lewis, C. (2009). *Links between social interaction and executive function.* u.k: Lancaster university. https://doi.org/10.1002/cd.232

Mark. S. D (2016). T*he statistical calculation of sample size.* California: World press.

Merriam, S. (1998). *Qualitaive reaserch and case study application in education* . Sanfrancisco.

Mmbaga. D. R. (2014). *The inclusive classroom in Tanzania.* Dodoma: Stockholm university.

Moronfola. B. (2018). *Effects of instructional resources on academic achievementsof Secondary school students.* Kwara.

Mueller, I. (2017). Early Life Exposure to Violence: Developmental Consequences on Brain and Behavior. *Frontiers in Behavioral Neuroscience*.

Munsanje, J. (2016). Provision of learning and teaching materials for pupils with visual impairment: Results from a National Survey in Zambia. *British Journal of Visual Impairment*.

Mwakyeja, B. M. (2019). Teaching Students with Visual Impairments in Inclusive Classrooms: A Case Study of One Secondary School in Tanzania. *A guide to Education advocacy in Tanzania. Dar es salaam.*

Nasiforo, B. M. (2019). Academic impediments with visual ipaiments encounter in the colleges of university of Rwanda . *Journal of special education vol. 18 and vol. 2*.

News, T. A. (2021). International celebration of white cane day [Recorded by D. K. Donathila]. Kigali, Kigali , Rwanda.

Nzoka, S. (2019). examine the potential of modern assistive technology and its effects on educational achievement of students with visual impairment at Kibos Special Secondary School. *Nairobi; East Africa Educational Publishers.*

Orodho. A. J & Kombo. (2013). *Research Methods.* Nairobi: Kenyatta university.

Otylo. W. R (2017). *challenges faced by visually impaired students* . Kampala: Makerere university.

Paivio. A. (1991). *Dual Coding Theory and Education.* New York: Oxford university press. https://doi.org/10.1093/acprof:oso/9780195066661.003.0004

Panthi, R. (2017). *Teaching and learning issues in mathematics.* Nepal: Adventure works press. https://doi.org/10.20944/preprints201706.0029.v1

Ppanthi, R. K. (2017). *teaching and learning issues in mathematics.* Nepal. https://doi.org/10.20944/preprints201706.0029.v1

Pauline. D. (2013). *Including children with visual impairment in mainstream schools.* London: David Fulton.

Popoola.T.A. (1990). *An investigation into the relationship between instructional resources and students'academic performance in secondary schools.* Lagos.

Shokhedim, S. A. (2018). Developing a Training Program in Reading and Writing Braille Symbols in English Language for Students with Visual Disability in Low Elementary Grades and Measuring Its Effectiveness. *An-Najah National University-Nablus, Palestine*.

Silberman.R.K. (2019). *Educating students who have visual impairments with other disabilities.* Nairobi: Paul H :Brookes.

Spangaro, J. (2019). The impact of interventions to reduce risk and incidence of intimate partner violence and sexual violence in conflict and post-conflict states and other humanitarian crises in low and middle income countries: a systematic review. *Trauma Violence Abuse. 2019;12(3):127–34.*

Spinczyk, D. (2019). Factors influencing the process of learning mathematics among visually impaired and blind people. *Computers in Biology and Medicine Volume 104, January 2019, Pages 1-9.* https://doi.org/10.1016/j.compbiomed.2018.10.025

Stinebrickner, R. (2019). Academic Performance and College Dropout: Using Longitudinal Expectations Data to Estimate a Learning Model. *Journal of Labor Economics,Volume 32, Number 3*. https://doi.org/10.1086/675308

Suzan, L. (2017). *Tipes and strategies to make geometry accessible* . PARKIN.

Suzan, L. (2017). *Types and strategies to make geometry accessible.* Nairobi: Cambridge.

Tamru. (2015). *The inclusive Educational process of students with visual ipairments.* Spain: AFB Press.

Tuyisabe, E. (2018). Children's experiences of gender based violence in Gasabo District Rwanda. *Global Scientific Journal*.

UNESCO. (2021). *Understanding and responding to children needs in inclusive classrooms.* Paris: UNESCO.

Williams, R. (2019). Visual learning theory. *Journal of Education and practice*.

Wyatt, T. (2017). Readiness of newly licensed associated degree registered nurses to screen for domestic violence. *Nurse Education in Practice*.