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INFLUENCE OF INDIVIDUALIZED INSTRUCTIONAL TECHNIQUES ON TEACHING AND LEARNING OF THE VISUALLY IMPAIRED PUPILS IN PUBLIC PRIMARY SCHOOLS IN RONGO SUB- COUNTY, MIGORI COUNTY.

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Abstract

*Provision of inclusive education in Kenya remains a serious challenge mainly due to various social –cultural and economic factors experienced in schools. Learners with visual impairment have varied problems and therefore require comprehensive educational programs such as individualized techniques and services, appropriate assessment and instructional adaptation. This study investigated factors influencing teaching and learning of visually impaired learners integrated in Public Primary schools in Rongo Sub-County, Migori County, Kenya. The specific objective of the study was to investigate the influence of instructional methods on academic performance of learners with visual impairment. The study employed descriptive survey design. The study was based on Bandura (1986) Social Cognitive Theory which outlines learning process as a result of surrounding behavior. The target population included 29 head teachers of public primary schools with integrated program and 40 Special Needs Education (SNE) teachers, giving a total of 69 respondents. Purposive and Saturated sampling techniques were used to get a sample size of 28 Head teachers and 39 SNE teachers. Two questionnaires were used to collect data; one for SNE teachers and another for head teachers. Piloting was done within Rongo Sub County using 1% of the target population. The research employed content validity and test-retest reliability techniques with a reliability index of 0.79 and 0.81 for teachers and head teachers respectively. Quantitative data was analyzed using descriptive statistics of frequencies, percentages and means and Inferential statistics of Chi- square. Data was analyzed using the Statistical Package of Social Sciences (SPSS) version 20. Frequency and percentage tables were used to present collected data. The study established that there was significant relationship between instructional methods and teaching and learning at $p < 0.05$. Therefore, the null hypothesis: **Ho_1**There is no significant relationship between instructional techniques and academic performance of visually impaired learners in Rongo Sub-County was rejected and it was concluded that individualized education program affects academic performance in Integrated Primary Schools in Rongo Sub – County. The significance of the study; to help the Ministry of Education, Teachers Service Commission, and Kenya Institute of special education to identify appropriate teaching and learning methods for learners with visual impairment. From the study it was recommended that; the Ministry of Education should organize workshops and seminars for teachers to equip them with knowledge and skills; ensure appropriate instructional methods are used in schools and teachers be trained in Special Needs Education.*

Keywords: *Individualized Instructional Techniques, Teaching and Learning, Visually Impaired Pupils*

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Introduction

Individualized instruction is a teaching approach that adapts instructional methods, materials, and objectives to meet the specific needs, strengths, and interests of individual learners. It moves away from a "one-size-fits-all" approach to cater to diverse learning styles and preferences. This method can be used on its own or as part of differentiated instruction. According to Byrne (2022) Inclusive education concentrates on the learning needs of all children with special importance on those that are vulnerable to discrimination, marginalization and exclusion. The provision of general education to all students in their respective classes with high quality instructions, support and intervention is a key indicator of inclusive education.

In the first special schools opened in Western Europe in the late 18th century, the goal of education differed in many ways from the goal of mastering elementary general knowledge and vocational training. Today, the educational goals are the same as for other students. Subject of research: determining the concerns, the readiness of teachers in regular elementary schools for the inclusive education of blind students.

According to Salnikova (2020), in his study in USA on the model of the organization of independent out-of-class students' learning activities based on the results of students' psychological characteristics diagnostics that had been carried out by authors in the period 2016–2018 in order to define the features of personal motivational sphere model implies an application of project-oriented educational technologies based on the interaction scheme "teacher-student" and "student-student".

Vision loss has severe impacts on physical, social and emotional well-being. The education of blind children poses issues as many scholar disciplines (e.g., geometry, mathematics) are normally taught by heavily relying on vision. Touch-based assistive technologies are potential tools to provide graphical contents to blind users, improving learning possibilities and social inclusion. Raised-lines drawings are still the golden standard, but stimuli cannot be reconfigured or adapted and the blind person constantly requires assistance. Although much research concerns technological development, little work concerned the assessment of programmable tactile graphics, in educative and rehabilitative contexts (Mukhiddinnov, 2021). Students with visual impairments (VI) miss out on science because of inaccessible visual graphics (such as pictures and diagrams) of the phenomena that are the focus of curricula.

According to May and Tomlinson, (2020), a loss of sight is also a stressful situation, which changes visual perception and imagination. The progression of the impairment influences the internal dimension of the person and his/her self-perception. Mental states and processes, emotions, and individual personality characteristics become part of the process of sight loss. Therefore, everything happens in the context of consciousness, unconsciousness, and meta-consciousness.

According to Vasileva et al. (2020), in their study on psychological characteristics of training psychology students within the whole-class system and using individualized educational technologies, individualized instruction technologies enhance students' psychological direction of professional motivation and professional identity.

Individualized instruction in Africa, like elsewhere, involves tailoring the learning experience to each student's unique needs, abilities, and learning style. This means adapting instructional methods, materials, and objectives to accommodate individual preferences and promote success in the classroom. The core principle is that each student learns differently and has unique needs, requiring a personalized approach to learning (Fafunwa, 2022).

In Tanzania the study on the experiences of teachers and students in implementing Individualized Education Programs (IEPs) for students with visual impairment revealed three significant themes as experienced by the participants: the identification of the learning needs of students with visual impairment (VI), strategies to

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meet VI learning needs, and challenges during the implementation of the IEPs. The study found inadequate implementation of IEPs from the selected school due to several challenges, including informal strategies in identifying students with VI, irregular training for the IEP team and inadequacy of teachers of special education to accommodate the available students with VI. The study suggested that the identification of students with visual impairment needs to be formalized, regular knowledge updates for the IEP team, and a reduced workload for special education teachers (Erasto,2023). Although this research is confined to a single-school study, the findings can be used as a benchmark for the schools that face similar situations regarding IEP implementation

In Kenya, Okello (2024) investigated how biology teachers use individualized education plans in teaching and learning of Biology in an inclusive classroom in secondary schools in Lira District. The findings of the study showed that; a few biology teachers could assign students with Visual Impairment (V.I) group projects before the day of presentation as required by competence-based curriculum, little attention was given to learners during the teaching and learning process. The biology teachers taught all of those learner categories using a lecture style. While most biology teachers were able to express their thoughts on the usage of IEP, none of them had detailed evidence on how they implemented IEP in their classroom instruction. Based on the results, biology teachers had negative views about the needs of students who are visually impaired.

Vision plays a critical role in an educational setting .Visual impairment which is severe enough to interfere with progress is considered a visual handicap. Despite the effort of the government in identifying visually impaired learners and integrating them into public primary school system, the problem of instructional techniques still poses a great challenge to academic achievement of learners with visual impairment in Rongo Sub- County as indicated by low scores in national examinations. The study investigated influence of individualized education programs, tactile learning experiences and projected sound on academic performance of visually impaired learners integrated in public primary schools in Rongo Sub- County.

Research Methodology

The researcher used a descriptive survey research design. Siedlecki (2020) indicates that descriptive survey is conducted to collect detailed description of existing phenomenon with the intent of employing data to justify current conditions and make recommendations for improving them. The use of descriptive survey was preferred because the researcher's intention was to find out the factors influencing teaching and learning in primary schools. This descriptive survey research design was used because of its appropriateness in establishing issues as they are from headteachers and teachers' responses without any manipulation.

The researcher targeted 29 head teachers from public primary schools with integrated programs; 40 Special Needs Education (SNE) teachers. The entire population of the study was 69.

Twenty-nine Head teachers and 40 SNE teachers were sampled through saturation to be part of the study because had the required information with respect to the objectives of the study. The researcher used saturation because the number was small. The sample size was hundred percent (100%) of the target population.

Questionnaires were the data collecting instruments. Questionnaires were used since they were convenient in terms of time. Questionnaires also presented an even stimulus to a large number of respondents simultaneously and provided the investigation with an easy accumulation of data (Gay, 1992). According to Oben (2021) questionnaires are the most suitable instruments for data collection where large numbers of subjects are involved in a study. Use of questionnaires is anonymous and helps to produce more candid responses than is possible in an interview.

Questionnaire was used to collect quantitative data, which was analyzed using both descriptive and

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inferential statistics. Qualitative data was collected and analyzed as emerging themes. Results of this data analysis were presented using frequency distribution tables. Chi square analysis was done to determine the influence of the independent variables on the dependent variable. The researcher finally used results of data analysis to draw explanations, conclusions and recommendations about the study.

Results And Discussions

Influence of Instructional Methods on Academic Performance

The objective of the study was to investigate the influence of individualized instructional techniques on academic performance of visually impaired learners in public primary schools with integrated program in Rongo Sub County. The researcher wanted to find out from head teachers and teachers the influence of instructional methods on academic performance. The findings are indicated in table 1 below.

Table 1

The response of teachers and head teachers on the use of appropriate instructional methods

		Teachers		Head teachers	
		Frequency	**Percent**	**Frequency**	**Percent**
Valid	Very low	6	16.7	-	-
	Low	4	11.1	4	16
	Moderate	12	33.3	6	24
	High	11	30.6	8	32
	Very high	3	8.3	7	28
	Total	**36**	**100**	**25**	**100**

Data in table 1 established that 6 (16.7%) of the teachers rated very low on the statement that effective and appropriate instructional methods enhance performance, 4(11.1%) rated low and 12(33.3%) rated moderate with an average of 3.0 meaning the effective and appropriate instructional methods enhances performance in a moderate way by teachers. The other 1 (30.6%) rated high and 23(8.3%) rated very high. On the head teachers, 4 (16%) rated low while 6(24%) of them rated moderate. The findings also shows that 8 (32 %) rated high and 7(28%) rated very high (with a weighted average of 4) meaning the effective and appropriate instructional methods enhances performance in a moderate way as was shown by head teachers. Majority of teachers therefore agree that effective and appropriate instructional methods enhance academic performance. This finding is supported by Boltenkova (2020) who asserts that majority of student have poor academic performance due to ineffective teaching methods. Quality of teaching is often reflected by the achievement of learners. Miura and Ifukube, (2021 say the visually-impaired people have the difficulty to perceive the largeness of a space and objects existed in a space by means of visual information. Particularly auditory-trained visually-impaired people can recognize 3-D spatial information with environmental sounds. However, systematic learning method of auditory training for acquired visually-impaired is not established sufficiently because the self-experience of the visually-impaired people is the main reason of ability acquisition in the actual environment because they do not have enough information about moving in the real environment. Totally visually-impaired people tend to get more spatial information from auditory than not-totally visually-impaired people. Regarding available auditory cues, items of rotating head in order to listen carefully to environmental sound, and hitting floors stronger by a white cane or foot for voluming up reflected or reverberated sounds were much selected by the totally visually-impaired

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participants who can perceive obstacles with auditory information.

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Hypothesis Ho1

There is no significant relationship between instructional methods and academic performance in integrated public primary schools in Rongo Sub County.

Table 2

Chi-square for Teachers' Responses

	Instructional Methods
Chi-Square	176.526[a]
Df	38
Asymp. Sig.	.003

Table 3.3

Chi-square for Head teachers' Responses

	Instructional Methods
Chi-Square	162.585[a]
Df	16
Asymp. Sig.	.002

To test the effect of instructional methods on academic performance Chi-Square was used. Summary of the analysis on table 3.2 and 3.3 indicate that there was significance relationship between instructional methods and academic performance at P=0.003<0.05 and P=0.001<0. 002respectively.Null hypothesis was therefore rejected and concluded that instructional methods had significant effect on academic performance. Poor academic performance by majority of the pupils was due to ineffective teaching methods. Learners with visual impairment should be taught using relevant teaching methods according to individual needs (Cardenas, 2021). Phutane et al. (2022), in their study on the experience of teachers of the visually impaired on tactile practice say that teachers of the visually impaired (TVIs) regularly present tactile materials (tactile graphics, 3D models, and real objects) to students with vision impairments. Researchers have been increasingly interested in designing tools to support the use of tactile materials, but we still lack understanding of how tactile materials are created and used in practice today. Mlynski and Adamczyk (2021) argue that sounds include those that would be heard in a number of situations in which a person with a visual impairment could potentially be found, both at home and, for example, while in the street or at an office. From headteachers SNE teachers' responses, people with visual impairment usually rated the sounds proposed for inclusion in the set of sound exercises as highly relevant or relevant. Their responses further indicate the assessment was analogous regardless of whether the person had a visual impairment since birth or developed it relatively recently.

Conclusions and Recommendations

Analysis of Chi- Square indicate that there was significance relationship between instructional

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methods and academic performance at $P=0.003<0.05$ and $P=0.001<0.002$respectively. The study findings showed that majority of teachers reported moderate use of individualized program. Majority of head teachers used individualized program while minority of head teachers were very low in using individualized program. Individualized Education Program (IEP) was averagely used and this contributed to poor academic performance in Rongo Sub- County.

Nevertheless, the results presented in this research may be useful for other countries. In this sense, it should be noted that IEP is a global phenomenon that is bursting into society and the educational system in all countries, so it is to be expected that the conclusions reached in this research can also be adopted in other areas.

Declaration of generative AI and AI-assisted technologies in the writing process

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CRediT authorship contribution statement

Namunga: Writing – review & editing, Riwa: Conceptualization, Writing – original draft, Methodology, Data curation.

Declaration of conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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