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TEACHERS' KNOWLEDGE OF THE VAKT LEARNING STYLE MODEL FOR PUPILS WITH LEARNING DISABILITIES IN ILORIN METROPOLIS

By

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Abstract

Teachers' knowledge towards instructional approaches are essential determinants of effective inclusive education for pupils with learning disabilities. The purpose of this study was to investigate teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in public primary schools in Ilorin Metropolis and to determine whether this variable differs based on gender and educational qualification. The study was guided by three specific purposes, two research questions and two hypotheses. A descriptive survey research design was adopted. The population comprised 3,822 teachers, from which 325 respondents were selected using a simple random sampling technique from public primary schools in Ilorin Metropolis. The study was anchored on the Dunn and Dunn Learning Style Model (1978) and the Theory of Planned Behaviour (Ajzen, 1991). Quantitative data was collected using two test instruments while the reliability of both instruments was established using the test–retest method, which yielded reliability coefficients of 0.76 for teachers' knowledge of the VAKT learning style model and 0.71 for teachers' knowledge of pupils with learning disabilities. Mean and percentage score were used to answer the research questions, while the independent samples t-test and one-way analysis of variance (ANOVA) were used to test the hypotheses at 0.05 level of significance. The findings revealed that teachers' knowledge of the VAKT learning style model for pupils with learning disabilities was high. There were no significant differences in teachers' knowledge based on gender or educational qualification. Specifically, no significant gender difference was found in knowledge ($t = 0.351$, $p > 0.05$), and educational qualification did not significantly influence teachers' knowledge ($F = 0.250$). The study concluded that teachers possessed high knowledge of the VAKT learning style model for pupils with learning disabilities. It was recommended that educational policymakers should incorporate the VAKT learning style model into teachers' education curricula and organize regular capacity-building, such as workshops and seminars to maintain and enhance teachers' knowledge of the VAKT Learning Style model for Pupils with Learning Disabilities.

Key Words: Teachers' Knowledge, VAKT Learning Style Model, Pupils with Learning Disabilities

Introduction

Education systems across the world are increasingly challenged to meet the diverse learning needs of all pupils, particularly those with learning disabilities. Across many classrooms today, a persistent concern remains: a significant number of pupils struggle to learn effectively despite being exposed to the same instructions as their peers. This challenge is particularly evident among pupils with learning disabilities, whose academic difficulties are often not due to lack of intelligence but rather to the mismatch between their learning needs and the methods used to teach them. In many cases, traditional teacher-centered approaches, characterized by verbal instruction and rote memorization fail to engage pupils with learning disabilities meaningfully. As a result, such pupils continue to experience poor academic performance, frustration, and reduced participation in classroom activities among others, raising serious concerns on equity and effectiveness in education.

Learning disability itself is a neuro-developmental condition that affects the way individuals process, retain, and express information. According to the American Psychiatric Association (2022), learning disabilities manifest through difficulties in reading, writing, mathematics, and other academic areas, despite normal intelligence and adequate educational opportunities.

Learning disabilities have far-reaching consequences that extend beyond academic performance, affecting the psychological, social, emotional, and long-term life outcomes of affected individuals (Adesokan, 2022). These impacts are often interconnected, creating a cycle of challenges that can hinder the overall development of pupils if not properly addressed through appropriate instructional and support strategies.

One of the most immediate impacts of learning disabilities is academic underachievement, which manifests when a pupil's performance in reading, writing, or mathematics fails to meet their actual cognitive potential, often resulting in poor academic performance. Pupils with learning disabilities often struggle with core academic skills such as reading, writing, spelling, and mathematics, despite having average or above-average intelligence. This discrepancy between potential and performance can result in persistent low academic achievement, class repetition, and poor examination outcomes. According to the American Psychiatric Association (2022), learning disabilities interfere significantly with the acquisition and use of academic skills, making it difficult for affected pupils to meet expected educational standards. Over time, these academic challenges may lead to disengagement from learning and increased risk of school dropout.These challenges often become evident during the early years of schooling and, if not properly addressed, can persist into adulthood(Birsh& Carreker, 2018). Researchers have suggested that techniques, materials, equipment or instructional strategies and models may be used to address their learning demands. An example of such instructional models is Visual, Auditory, Kinesthetic and Tactile (VAKT) learning style model developed for pupils with learning disabilities.

The Visual, Auditory, Kinesthetic and Tactile (VAKT) learning style model is a multisensory instructional approach designed to enhance learning by engaging multiple sensory pathways simultaneously(Sayed et al., 2025). Rooted in the multisensory teaching principles advanced by Fernald, the VAKT learning style model emphasizes that learners understand and retain information more effectively when they are allowed to see, hear, move, and physically interact with learning materials(Sayed et al., 2025). The visual component involves the use of charts, diagrams, and written texts; the auditory component focuses on listening and verbal interaction; the kinesthetic aspect engages learners through movement and physical activity; while the tactile component involves hands-on manipulation of objects(Abraham, 2025). By integrating these modalities, the VAKT learning style model accommodates diverse learning preferences and strengthens cognitive connections, making learning more meaningful and memorable.

In a diverse classroom setting, the VAKT learning style model is particularly valuable for teaching pupils with learning disabilities, who often experience difficulties with traditional, single-mode instructional approaches(Hallahan et al., 2023). The model provides alternative pathways for learning by engaging the body, senses, and mind together. For instance, a pupil who struggles with reading may benefit from combining visual recognition of words with auditory pronunciation and tactile tracing activities. This holistic approach not only improves comprehension and retention but also enhances learner's engagement and confidence(Sayed et al., 2025). However, the successful implementation of the VAKT learning style model depends largely on teachers' knowledge as this factor determines how effectively the model is incorporated into classroom practices.

Teachers' knowledge of the VAKT learning style model involves a deep understanding of its components, principles, and practical application in teaching. Research emphasizes that teachers cannot effectively teach concepts or strategies they do not understand, and highlights the importance of pedagogical knowledge in instructional delivery (Ajuwon& Brown, 2019). Empirical evidence from recent studies on multisensory approaches indicates that methods such as VAKT significantly improve learners' cognitive outcomes, attention, and engagement when properly implemented (Ajuwon&

Brown, 2019). This informs the inclusion of teachers' knowledge in this study, as it helps to assess whether teachers possess the competence required to apply the VAKT learning style model in supporting pupils with learning disabilities.

The literature reviewed indicates that teacher characteristics, particularly gender and academic qualification, may moderate teachers' knowledge of instructional innovations. Gender differences in teaching beliefs and practices have been reported in some studies, with female teachers sometimes showing more positive attitudes toward inclusive and learner-centered approaches, although findings remain inconsistent (Tomori, 2020; Odo, 2021). Qualification has been found to be a more consistent predictor, as teachers with higher academic and professional training, especially in special educationtend to demonstrate greater knowledge and more favorable attitudes toward teaching pupils with learning disabilities (Otunyo&Ekom-Idorenyin, 2020; Ajuwon& Brown, 2019). This suggests that teachers' educational qualification may influence their knowledge and utilization of the VAKT learning style model.

In Ilorin Metropolis, Kwara State, primary school classrooms are increasingly characterized by learner diversity, including pupils with varying degrees of learning disabilities. Despite this reality, little empirical evidence exists on how teachers in Ilorin metropolis understand and respond to multisensory instructional models such as VAKT. Specifically, the knowledge of the VAKT learning style model among teachers must be investigated to determine whether they possess sufficient knowledge to apply it. For instance, Salihu (2025) investigated the VAKT learning style among senior secondary school students in Ilorin and discovered an improved academic performance in Chemistry. But the researcher noted the lack of Tactile (T) component in the model and teachers' knowledge variables. In addition, Akinnawonu et al. (2025) also investigated the VAKT learning style preferences among secondary school students in Lagos State. The researchers discovered VAKT learning model is prominent among the students. However, the study also excluded Tactile components in the model.

The moderating influence of gender of the teachers on the effectiveness of VAKT cannot be overlooked in this study. Gender influences the knowledge of teachers generally. According to Buowari et al. (2025), female frequently prefer reading/writing or aural styles, while male often lean towards kinesthetic and visual approaches. That is, females tend to be more comfortable with multimodal learning, whereas males often prefer specific kinesthetic, active, or visual methods (Buowari et al., 2025).However, the extent to which gender and qualification influence these variables in Ilorin metropolis remains under-researched. For instance, Ranjan and Asha (2024) examined the effect of VAKT on students with learning disabilities in Arunachal Pradesh. The researchers found that there was no gender difference among the students.

Therefore, this study aimed to investigate teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis, with particular attention to the moderating roles of gender and academic qualification.

Purpose of the Study

The main purpose of this study was to investigate teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis. Specifically, the study examined:

i. the level of teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis.
ii. the gender differences in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis.
iii. the differences in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on academic qualification.

Research Questions

The following research questions were raised to guide the study.

1. What is the level of teachers' knowledge of pupils with learning disabilities in Ilorin Metropolis?
2. What is the level of teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis?

Research Hypotheses

The following hypotheses were formulated which was tested at 0.05 level of significance.

H_{01}: There is no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender

H_{02}: There is no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on educational qualification.

Methodology

The study adopted a descriptive survey research design. Descriptive survey is considered appropriate for the study because it is used to assess phenomenon in its natural setting without any manipulation. The target population for this study comprised 3,822 public primary school teachers in Ilorin Metropolis, the four local government areas included Asa, Ilorin-East, Ilorin-South and Ilorin-West Local Government Areas.

A sample of 325 teachers was selected from the target population for this study. The sample size was determined using the Research Advisors (2006) Sample Size Table, which provides an appropriate sample size for a given population at a 95% confidence level and a 5% margin of error. The selected sample was considered adequate to provide reliable information for addressing the research questions and testing the hypotheses.

Two research instruments (Knowledge Test) were used to obtain data from the respondents. The Knowledge Tests were tagged "Knowledge Test on Pupils with Learning Disabilities"(KTPWLD) and "Knowledge Test on VAKT Learning Style Model"(KTVAKTLSM). This was tested for reliability using test-retest method, copies of the knowledge test were administered twice to 30 pupils in an interval of two weeks. Data from administrations were analyzed using Pearson Product Moment Correlation (PPMC) which yielded reliability coefficients of 0.76 for teachers' knowledge of the VAKT learning style model and 0.71 for teachers' knowledge of pupils with learning disabilities. The research questions were answered using mean and percentage scores while hypothesis were tested using independent samples t-test and one-way analysis of variance (ANOVA) at 0.05 level of significance.

Results

Table 1: Distribution of respondents based on gender.

Gender	Frequency	Percentage
Male	196	60.31
Female	129	39.69
Total	325	100.0

Table 1 shows the distribution of respondents based on gender 196 of the respondents representing 60.31% were male while 129 of the respondents were female representing 39.69%. From the analysis above, it is apparent that male respondents were more in number than female respondents.

Table 2: Distribution of respondents based on teacher qualifications.

Teaching Qualification	Frequency	Percentage
NCE	110	33.85
B.Ed./HND	151	46.46
M.Ed./ M.Sc	64	19.69
TOTAL	325	100.0

Table 2 shows the distribution of respondents based on teacher qualification 110 of the respondents representing 33.85% were NCE, 151 of the respondents representing 46.46% were B.Ed./HND while 64 of the respondents was 1 representing 19.69%. From the analysis above, it is apparent that B.Ed./HND respondents were more in number than other respondents.

Research Question 1: What is the level of teachers' knowledge about pupils with learning disabilities?

Table 3: Table showing the level of teachers' knowledge about pupils with learning disabilities

Dispersion	Score	N	Mean Score	Remark
Minimum	02			
		325	15.77	High.
Maximum	10			

Decision Rule: 0-7 marks (0-39%) = low, 8-14marks (40-69%) = moderate, 15-20 marks (70-100%) = high

Table 3 shows that the 325 teachers who participated in the study obtained a mean score of 15.77 in the knowledg test on pupils with learning disabilities. Based on the decision rule, a score of 15–20 marks (70–100%) indicates high level of knowledge. Since the observed mean score of 15.77 falls within this range, the result indicates th teachers had a high level of knowledge about pupils with learning disabilities. This suggests that the teache demonstrated adequate knowledge and understanding of learning disabilities and the learning needs of pupils wi learning disabilities.

Research Question 2: What is the level of teachers' knowledge of the VAKT learning style model for pupils wi learning disabilities in Ilorin Metropolis?

Table 4: Table showing the level of teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis

1. Decision Rule: 0-7 marks (0-39%) = low, 8-14marks (40-69%) = moderate, 15-20 marks (70-100%) = high

Table 4 shows that the 325 teachers who participated in the study obtained a mean score of 15.86 in the knowledge test on the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis. Based on the decision rule, scores ranging from 15–20 marks (70–100%) indicate a high level of knowledge. Since the observed mean score of 15.86 falls within this range, the result indicates that teachers had a high level of knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis.

$\mathbf{H_{01}}$: There is no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender

Table 5: Summary of T-test Analysis shows the significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender

Dispersion	Score	N	Mean Score	Remark
Minimum	10			
		325	15.86	High
Maximum	20			

Source: Field Survey 2026

Table 5 showed the summary of t-test results showing the significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender. It was revealed that male respondents had mean score 15.67 and standard deviation 2.75 while female respondents had mean score 15.93 and standard deviation 2.51, the t was -.870, degree of freedom 323 and significant level of 0.351 (P>0.05). This implies that there was no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender. Therefore, the null hypothesis that states that there is no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender was not rejected.

H_{02}: There is no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on qualification.

Table 6: The summary of ANOVA showing difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on qualification.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.541	2	1.771	.250	.779
Within Groups	2279.610	322	7.080		
Total	2283.151	324			

Source: Field Survey 2026

Table 6 showed difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on qualification. ($F_{(323)} = .250$; $P > 0.05$). Since the significant value is greater than 0.05, the hypothesis is therefore rejected in the light of the result.

Discussion of Findings

The finding of the study revealed the level of teachers' knowledge towards the VAKT learning style model for pupils with learning disabilities. The discussion of findings was done based on the purpose of the study. Two research questions were answered and two hypotheses were tested.

The first finding of the study revealed that the level of teachers' knowledge about pupils with learning disabilities was very high, this is because there has been regular sensitization on the knowledge of learning disabilities on regular basis. Kwara State University, Faculty of Education, Department of Special Education among other bodies conduct yearly disability day in order to educate the public on knowledge of disabilities. The finding was in line with the findings of Rani and Reddy (2021) that discovered that 55% of school teachers showed moderately adequate awareness of learning disabilities. It was concluded that there is a need to sustain the knowledge of primary school teachers on learning disabilities and to improve their basic skills in recognizing learning disability at the earliest stage.The growing emphasis on inclusive education may also have contributed to the finding. As pupils with diverse learning needs increasingly receive education within regular school settings, classroom teachers are required to develop greater awareness of different forms of learning difficulties. Consequently, teachers may have become more familiar with conditions such as dyslexia, dysgraphia, and dyscalculia and with the strategies required to support affected pupils.

The finding of research question two revealed that the level of teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis was high. Teachers had been adequately educated in teachers'training schools, workshops and in-service-trainings on Visual, Auditory, Kinesthetic and Tactile learning style model which informed their knowledge about it. The finding was in line with the findings of Ranjan and Asha (2024) who discovered that school teachers showed moderately adequate knowledge of learning disabilities. However, there is a need to preserve the knowledge of primary school teachers on VAKT learning style model to enhance their basic skills knowledge on VAKT learning style model for pupils with learning disability in schools.

The teachers' classroom experience may have also contributed to the finding. In regular primary school classrooms, teachers encounter pupils who differ in the ways they respond to instruction. Some pupils may learn more effectively when information is presented visually, orally, through movement, or through hands-on activities. Repeated classroom experiences with such differences may have increased teachers' practical understanding of the need to vary instructional approaches. Consequently, teachers may have developed knowledge that is consistent with the principles underlying the VAKT model, even where they may not always formally identify their classroom practices as VAKT-based.

The finding of hypothesis one revealed that there was no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on gender. The findings corroborate the findings of Salihu (2025) who discovered that gender was not a significant moderator on teachers' knowledge of VAKT learning style model for pupils with learning disabilities. This implies that gender has no significant influence on teachers' knowledge of VAKT learning style model for pupils with learning disabilities.

The finding of hypothesis two revealed that there was no significant difference in teachers' knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin Metropolis based on qualification. This agrees with the findings of Akinnawonu et al. (2025) who found that teachers' knowledge of VAKT learning style model for pupils with learning disabilities were similar across groups, qualifications notwithstanding. This could be as a result of general knowledge of learning disabilities commonly observed among pupils in schools.

Conclusion

The study investigated teachers' knowledge of the VAKT learning style model for pupils with learning disabilities. Based on the findings of the study, it was concluded that the level ofteachers' knowledge of the VAKT learning style model for pupils with learning disabilities was high. However, the high level of teacher's knowledge of the VAKT learning style model for pupils with learning disabilities in Ilorin metropolis needs to be sustained and consistently improved uponwhich is necessary to improve academic performance of pupils with learning disabilities in schools.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The knowledge of VAKT learning style model should be incorporated into the coursework of teachers in training to ensure certification and expertise of teachers on VAKT learning style model for pupils with learning disabilities.
2. School administrators should regularly evaluate teachers in order to update their knowledge of the VAKT learning style model.
3. Capacity building workshops and seminars should be regularly organized for service teachers in order to update their knowledge of learning disabilities.
4. Educational policy makers should create VAKT learning style model curriculumsto run alongside existing school curriculums to sustain and establish the awareness on VAKT learning style model for pupils with learning disabilities.

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