
ASSESSMENT OF PRIMARY SCHOOL TEACHERS' KNOWLEDGE OF HIGHER ORDER THINKING SKILLS IN ILORIN WEST LOCAL GOVERNMENT AREA

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ABSTRACT

Learners in the 21st century need to be equipped with knowledge and skills that would enable them to think critically and creatively. This can be achieved through the teacher's knowledge of the subject matter. Based on this, the researcher examined primary school teachers' knowledge of higher order thinking skills in Ilorin West Local Government Area. The study adopted a descriptive survey research design using a sample size of 347. An instrument tagged Teachers' Knowledge of Higher Order Thinking Skills (TKHOTS) developed by the researcher was used for data collection. The instrument was validated by experts in measurement and evaluation and primary education studies.

Three research hypotheses were formulated for the study and the data were analysed using Analysis of variance and T-test. The results of the study show that there is a significant difference in primary school teachers' knowledge of higher-order thinking skills based on teachers' qualifications, years of experience and gender. The results also show that the majority of respondents for this study were females representing 81.5% of teachers.

The study concluded that there is a significant difference in primary school teachers' knowledge of higher order thinking skills. The following recommendations were made: school administration should provide regular teacher training and there should be an adequate resource and support system for teachers' professional development.

Keyword: Gender, Higher order thinking skills, Knowledge, Teachers, Qualification,

INTRODUCTION

Nations of the world have in recent times come under pressure to move their educational sector at a pace that can match the demand of the 21st century, with this demand much pressure is placed on the teacher and learner, curriculum, and the learning environment. Teachers need to be competent and effective to effectively impart the learner's creativity, critical thinking, problem-solving, and collaborative skills which are part of 21st-century demand.

Hence teachers need to know the appropriate pedagogy that influences the learner's knowledge and skill.

Education is a collaborative process of teaching and learning that begins at birth and continues throughout a person's life span to prepare an individual for a productive existence within society. No nation can rise above the education status of its citizens because it is the foundation through which the necessary skills and norms are developed (Eze, Charles, & OGA, 2022). Education aims to develop pupils who can be useful to themselves, their families, and society in general.

The rapid advancement of the educational sector, knowledge, and technology has led to the upcoming of different employment opportunities and social interactions that differ significantly from those of previous periods. The challenges and issues that humanity and society will face in the future are expected to be increasingly intricate, making it clear that they cannot always be addressed through conventional methods. Consequently, the educational sector must also adapt to these transformations by ensuring that pupils are equipped with higher-order thinking skills (Elin & Ernawati, 2019). High order thinking skill is a mental ability that takes place at the highest level of cognitive process (Krulik & Rudnik in chistella & Soekamto, 2017).

Collins (2014) stated that a higher-order thinking skill is the ability to apply knowledge, engage in critically in order to solve real-world problems. High order thinking skills are based on the assumption that the biggest problem for pupils is their inability to build the kind of understanding needed to solve difficult concepts (Broek, 2012).

The learning experience that enables pupils to develop higher order thinking skills is different from traditional learning in general, higher order thinking skills are geared towards improving the quality of thinking processes during learning. The idea of higher order thinking skills came into practice through the work of Benjamin Bloom who classified the cognitive domain of learning into different levels based on complexity and richness. As you travel up the pyramid, the level of complexity increases (Krathwohl, 2002).

According to Krathwohl, (2002), Bloom categorized cognitive skill into six tiers of thinking: knowledge, comprehension, application, analysis, synthesis, and evaluation. The initial three tiers of Bloom's taxonomy requires recognition of facts, which are categorized as lower-order thinking skills, including knowledge, comprehension, and application. In contrast, the remaining three tiers demand that pupils engage in higher-order thinking skills. Higher order thinking skills go beyond rote learning of fact, it is the ability to solve problems through analyzing, evaluating, and synthesis of a learning experience.

Assessing a learner's cognitive skills at a higher order level enables the learner to show what they can but, looking at reality now, many schools only emphasize memorizing facts (Warmadewi, et al 2019). The analysis level deals with breaking down components of learning content to explain explicitly the structure of learning content, the synthesis level deals with integrating different components while the evaluating level deals with

making sound judgments about the learning content (Darwis, R. H., Muddin, A. & Patinbangi, A. 2024).

Warmadewi et al (2019) suggested that the process of teaching and learning should focus more on critical thinking, problem-analyzing, problem-solving, decision-making, and inventing something new. This requires the pupils to be active in the teaching and learning process; it can be achieved through the assessment of pupils' cognitive skills at the higher order level. Brookhart, (2010) explained that pupils do not develop an interest in their studies in an abstract sense but they become motivated by content that motivates them to think. Higher-order thinking increases pupils' sense of control over ideas, pupils who develop these skills right from an early stage are better equipped to grasp intricate concepts.

Furthermore, Brookhart, (2010) identified the process involved in assessing higher order thinking skills of pupils: 1) present pupils with materials to think about which can be in the form of text, problem, or visual. 2) use fresh material - material that is unfamiliar to the pupils, not previously taught in class, and therefore open to memory retrieval. 3) Differentiate between the difficulty level (easy versus hard) and the level of cognitive processing (lower-order thinking or higher-order thinking). Kareem and Adeleke (2020) states that in the world today education goes beyond low-level thinking as scientific advancement and innovation are dependent on a higher order of thinking.

Previous studies have indicated the significant impact of higher order thinking skills in teaching and learning (Retnawati et al, 2018, purnama, 2020). Tanujaya, Mumu and Margono (2017) reported that pupils who have high (higher order thinking skills) tend to get high grades in their mathematics instruction, whereas those with low (higher order thinking skills) tend to have low grade levels. Zinyahs (2023) stated that explicit instruction in higher order thinking skills influences the pupils' mastery and integration of the content to solve real problems. In recent years, there has been a significant shift towards prioritizing higher-order thinking skills. Both educators and employers recognize the value of critical thinking and creative thinking over rote memorization of facts and procedures (Zinyahs, 2023).

A study conducted by Jensen et al (2014) also reported that pupils who are taught with higher level cognitive processing were able to perform the assessment questions of both low-level questions and high-level questions. Knowledge, skill, and value acquisition at every level of education is mostly acquired through teachers; effective teaching and learning are facilitated by teachers. Teachers have been known to play a crucial role in pupils' academic achievement and they play a vital role in educational attainment because the teacher is ultimately responsible for translating the aim and objective of the curriculum into actions (Agharuwhe, 2013).

This indicates that having a well-planned curriculum does not ensure that learning will occur; rather, successful teaching and learning require teachers who are capable of implementing the curriculum effectively (Alsubaie, 2016). For the successful execution of the learning experience at any educational level it depends heavily on the teacher (Ekperi, 2018).

Emelogu (2016) also stated that when it comes to knowledge and norms transfer or education in general, teachers cannot be undervalued. Teachers play a crucial role in the dissemination of knowledge, for teaching and learning to be meaningful and concrete teachers must possess some skills. The development of teachers in the present era must focus on fostering a dedication to effectively instilling 21st-century skills. Additionally, teachers are expected to engage in systematic thinking to create learning resources and materials that facilitate the acquisition of these skills in alignment with the demands of the evolving 21st century. For a teacher to effectively shape the pupils it depends on the teachers' knowledge. Teachers' knowledge refers to the understanding and information regarding a particular subject which constitutes a fundamental element of how a teacher delivers the learning content to pupils.

Teachers' knowledge of the subject matter is viable in the process of helping pupils to learn without a teacher who cannot successfully facilitate learning. Previous studies have shown that knowledge is an important element in learning acquisition (Sadiq,

2019; Kareem et al, 2022). Pupils demonstrate a greater understanding of lessons and exhibit heightened interest when instructed by a teacher who possesses a thorough knowledge of the subject matter. A teacher with such expertise can deliver lessons effectively. This proficiency enables the teacher to fulfill their responsibilities both efficiently and effectively, as well as to design and execute a comprehensive curriculum (Sadiq, 2019).

Majason in Ekperi (2018) opined the most important attribute of a teacher is mastery of the relevant knowledge regarding the subject. Without solid knowledge, a teacher cannot effectively impart knowledge to the pupils. Achieving the objective of a lesson depends heavily on the teacher's knowledge competence, if the teacher lacks the knowledge it might negatively affect the pupils' engagement, teacher confidence, and teacher respect (Ali, Chachar, & Bachal, 2023). Previous research has reported that teacher knowledge has a huge impact on the learning achievement of the pupils (Ali et al, 2023; Ekperi 2018). Some factors influence a teacher's knowledge of the subject; these factors are the characteristics of a teacher. Teacher characteristics can be explained in terms of all the qualities that a teacher possesses that distinguish each teacher (Wayne & Youngs in Abdikani, 2022). This quality includes teachers' qualifications, teacher's years of experience and gender .

Teacher qualification refers to knowledge, competence skills and professional development that a teacher has acquired in the area of specialization. The extent and quality of the professional preparation a teacher receives will influence both the quality and style of the teacher's teaching. Agbor, Onnogben, and Etan (2023) submitted that teacher quality is largely dependent on the teacher's qualification which shows in the way the teacher delivers learning content to the pupils. They also stated that a qualified teacher has good classroom management, an effective mode of communication, and sufficient understanding and knowledge of the subject area and can use different methods of teaching to enhance the pupils' academic performance. Consequently, the National Policy on Education (2013) stated that the minimum requirement for an individual to serve as a teacher at the primary school is a Nigeria Certificate in Education (NCE).

Teacher qualifications are the teacher's academic qualifications obtain from certification programme Ngada in owolabi and Adebayo (2012) noted that the success of any educational level hinged on qualified teachers, for the teacher to be qualified the teacher must have gone through some training. Owolabi and Adebayo (2012) found that learners instructed by teachers holding higher qualifications achieved higher performance levels compared to those taught by teachers with lesser qualifications.

Another teacher's characteristic is the teacher's years of experience.

The teacher's years of experience are the years a teacher has used in teaching and the relevant skills and knowledge the teacher has acquired. The teaching experience of a teacher can be quantified based on the teacher's proficiency in understanding and imparting knowledge and skill to the pupils. Bolarinwa et al (2020) opined that the fundamental premise is that the competence of pupils seems to be enhanced by teacher years' experience. The issue of gender disparities has become crucial to educational researchers nowadays. There have been varying perspectives and studies regarding the relative capabilities of males and females in various fields, particularly in the realm of education (Adebayo & Kolawole, 2013).

Ogochuhwu and Mmaduabuchi (2023) explained gender as a characteristic associated with an individual's sex within a societal setting, shaped by the cultural and religious influences of the community. Okoronka and Bitrus (2014) indicated that there are significant disparities between males and females regarding their interests and career selections. Perhaps these disparities might influence teacher knowledge of higher order thinking skills. Previous studies on gender have reported a significant difference in teacher knowledge based on gender.

Haroun et al. (2016) conducted a study on the gender difference among teachers regarding their teaching knowledge, revealing that female teachers achieved notably higher scores in content knowledge compared to their male counterparts.

The primary facilitator of knowledge to the pupils is the teacher, since the teacher is a crucial element in knowledge acquisition, there is a need to understand the teacher's knowledge of higher order thinking skills. However there is concern that primary school teachers may not possess sufficient knowledge to effectively teach and assess higher order thinking skills in their pupils. Because it has been observed that teachers mostly assess pupils' lower order thinking which is just the pupils' ability to recognize fact of content. This lack of expertise could hinder pupils' development of critical thinking, problem-solving, and creativity which are essential skills for the 21st century.

The objective of this study is to investigate primary school teachers' knowledge of higher order thinking skills in in Ilorin West Local Government Area.

RESEARCH HYPOTHESES

To achieve the purpose of this study, the following hypotheses were postulated

Ho₁ There is no significant difference in primary school teachers' knowledge of higher order thinking skills based on teachers' qualification

Ho₂ There is no significant difference in primary school teachers' knowledge of higher order thinking skills based on teachers' years of experience

Ho₃ There is no significant difference in primary school teachers' knowledge of higher order thinking skills based on teachers 'gender

METHODOLOGY

This study adopted descriptive survey research design; this would enable the researcher to describe the characteristics of the respondents. The population of this study comprised of all private primary schools and their teachers in Ilorin West Local Government Area. There are 4217 private primary schools in Ilorin West Local Government Area. (Kwara State School Census Report, 2022/2023).

To draw, the simple random sampling technique was used to select 347 teachers based on research advisors, which stated that the recommended sample size of a population above 3,500 at a confidence level of 95% is 347. An instrument tagged Teachers' Knowledge of Higher Order Thinking Skills (TKHOTS) developed by the researcher was used for data collection. The instrument consists of two sections A and B.

Section A comprised demographic variable of the respondents while section consists 15 items on teachers' knowledge of higher order thinking skills on a four (4) point Likert type scale using Strongly Agree (SA) 4, Agree (A) 3, Strongly Disagree (SD) 2, and Disagree (SD) 1. The instrument was validated by expert in measurement and evaluation and primary education. The data collected were analysed using inferential statistics of Analysis of Variance and T-test

RESULTS AND DISCUSSION

The research findings were presented based on the objective of the study. The result of the study shows that based on teachers’ qualification, 150 teachers had NCE representing 43.2%; 181 teachers had B.ED/B.SC representing 52.2% and 16 teachers had M.ED/M.SC representing 4.6%. This shows that the majority of the respondent has qualification required for teaching. The results obtained also reveals that majority of the teachers represented by 46.7% are having teaching experiences between 5 and 8 years. The respondents with the least teaching experience was found to be teachers with teaching of 13 years and above representing 20 respondents forming 5.8% of the total population sampled. The results also show that majority of respondent for the study was females representing 81.5% teachers.

Three null hypotheses were generated and tested for this study. The hypotheses were tested using Analysis of Variance and T-test statistical method at 0.05 level of significance.

H₀₁: there is no significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ qualification.

Table 1: Analysis of Variance (ANOVA) on the difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ qualification

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	180.567	2	90.284	4.417	.012
Within Groups	7091.190	347	20.436		
Total	7120.217	349			

The analysis in Table 1 shows that the calculated f-value of 4.417 is greater than the critical f-value of .012 at $p < .05$ alpha level. Therefore the null hypothesis is rejected. This implies that there is a significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ qualification

H₀₂: There is no significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ years of experience

Table 2: Analysis of Variance (ANOVA) on the difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ years of experience

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	210.635	3	70.212	3.422	.017
Within Groups	7098.583	346	20.516		
Total	7120.217	349			

The analysis in Table 1 shows that the calculated f-value of 3.422 is greater than the critical f-value of .017 at $p < .05$ alpha level. Therefore the null hypothesis is rejected. This implies that there is a significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ years of experience.

H₀₃: There is no significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ gender

Table 3: of t-test Analysis on the significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ gender

Teachers , Knowledge of HOTS	N	Mean	Std. Deviati on	T	df	Sig.	Remark
Male	13 4	26.94 03	3.82269	- 2.23 9	34 8	.00 6	Significa nt
Female	21 6	28.04 63	4.85872				

Dependent Variable: Teachers Knowledge

Table 3 shows the significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ gender. The finding revealed that there was a significant difference in (t = -2.239; df = 348; P < 0.05). The hypothesis was therefore rejected in the light of the result since the significant value (.006) is less 0.05. This implies that Male teacher’s knowledge (Mean= 26.94) is significantly different from that of Female teachers knowledge (Mean= 28.05) of higher order thinking skills.

The results of hypothesis one show that there is a significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ qualification. This implies that the higher the qualification of a teacher the higher the knowledge acquire from the certification programme which enable the teacher to be informed about the latest research and effective practices in the field. A solid understanding of the subject matter is necessary in designing of lessons that emphasize higher-order thinking skills. The finding is line with studies of Bolarinwa et al (2020); Alfarisy, Ainin and Khasairi (2023) that

reported that teachers’ qualification influence teachers knowledge of higher order thinking skills which reflect in the quality of teachers- made test of the respondents. Pupils need assessments of their higher-order thinking abilities in order to prepare them to face the challenges of globalization.

The results of hypothesis two show that there is significant difference in primary school teachers’ knowledge of higher order thinking skills based on teachers’ years of experience. This show that teachers’ years of experience enhance teachers’ instructional strategies, including lesson planning, classroom management, and assessment method. This finding is line with studies of Ayeshunga, EtoroAbasi, and Okoh (2023); Ismail, Arshad and Abas (2018); Aslihan and Zafer (2019) that reveal that as teachers gain experience they improve on their assessment technique in classroom instructional practices.

The findings of this study also revealed that there is a significant difference in primary school teachers’ knowledge of higher order thinking skill based on gender, this findings is agreement with Haroun et al. (2016) that reported that there is a significant difference in teachers’ content knowledge based on gender. Sa’dijah et al (2021) also reported that there are notable differences in how male and female teachers approach teaching of higher order think skill. They also concluded that gender influence decision-making processes and teaching strategies of the respondents.

CONCLUSION AND RECOMMENDATIONS

The study concluded that certainly there are some variables of teacher characteristics that could influence teachers' knowledge of higher order thinking skills. Teachers are important element in classroom activities, if teachers do not have a deep understanding of a concept it would be difficult for them to impart learning to the pupils. This study established that there is difference in primary school teachers' knowledge of higher order thinking skills based on teachers' qualification, years of experience and gender. The following recommendation based of the findings of this study

- School administrator should provide regular teacher training and new teacher should work with experienced teacher so that they can learn from each other
- There should be a resource and support system for teachers in getting advanced degrees in order to help upgrade their qualification
- Experienced teachers should be retained on the job so that they can share their knowledge
- More male teacher should be encourage to teach at primary school level in order to balance the gender disparity
- Teachers should attend workshops, seminars and conferences in to order to stay abreast of the least development in classroom practices and assessment methods. These would enlighten the teachers on current trend in educational sector.

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