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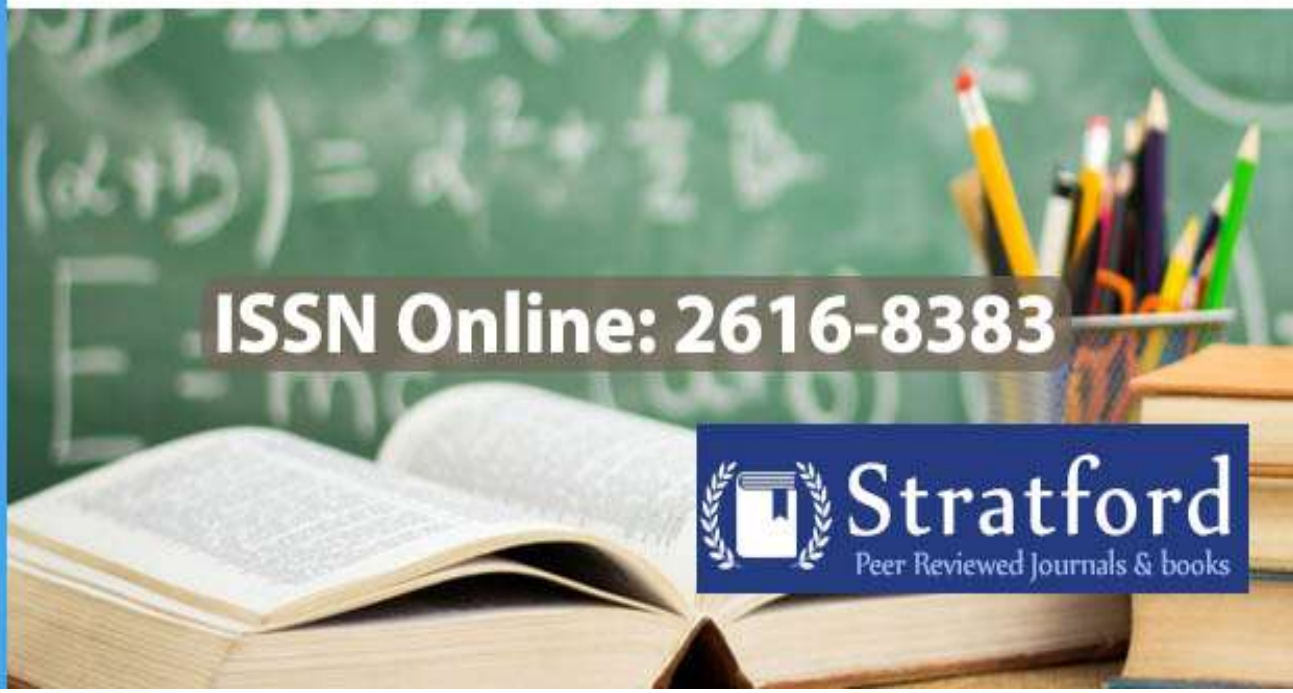

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Impact of Teacher Education Level, Years of Teaching Experience and Teaching Behaviour as Determinants of Pupils' Academic Achievement In Integrated Science in Eastern Sierra Leone 2005-2007

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Abstract

The study investigated "Impact of teacher education level, years of teaching experience and teaching behaviour as determinants of pupils' academic achievement in integrated science in Eastern Sierra Leone between 2005 and 2007". A descriptive research type of a survey design was employed for the study. The target population included: junior secondary school pupils, integrated science teachers and integrated science heads of department. Stratified sampling technique was adopted to select the junior secondary schools while purposive sampling technique was used to select sample sizes of 270 JSS pupils, 54 integrated science teachers and 27 Heads of Integrated science Department. The key instrument employed was Self-Administered Integrated Science Questionnaire form (SAISQ).The instrument was validated by a team of science experts in the Department of Science Curriculum Development Centre, Njala University. A reliability coefficient were computed and a Cronbach alpha constant of dependability values of 0.78 and 0.80 were obtained respectively for the instrument. Findings of the study revealed that the highest qualification obtained among the HODs is Bachelor of Science Education degree followed by those with HTC (Primary) and HTC (Secondary) respectively. The study further confirmed that majority of the integrated science teachers obtained HTC (Secondary) and B.Sc Ed. degree respectively. There is clear indication that a very good percentage of Integrated Science teachers of the survey are trained and qualified but they are qualified in other subjects areas, and are found teaching Integrated Science in the schools. There are few teachers trained for the primary schools and are also teaching in the junior secondary schools. Results of the study also confirmed that high concentration of the teachers with experiences fall within (10-14) years. Regarding the extent to which the unprofessional attitude are accepted, the result revealed that teachers conduct or attitude were never acceptable behaviour to the pupils. Based on the findings, the researcher recommended that: Firstly, Government should employ trained and qualified teachers and others with experience in the schools. Secondly, school authorities should ensure that teachers make use of adequate teaching aids and encourage them to improvise equipment where necessary. Thirdly, Government

should provide better conditions of service and incentives to retain the existing qualified teachers in the schools. Finally, academic performance of pupils should be a requirement for teachers' promotion exercise.

Keywords*: School, Level, Achievement, Impact, Behaviour, experience*

1.0 Background to the Study

Teaching as a profession, is not a simple task undertaken by academics especially teachers who deliver subject contents in their pedagogy in Sierra Leone. It carries responsibility and needs special training for its effective delivery. Training is required by choice to accumulate the proficiency skills, information and ethics of the profession. The teaching profession in Sierra Leone has become employment for several individuals who are not trained and qualified within the teaching field. To an extent, some enter teaching establishments or higher establishments of learning to pursue courses that are not associated with the teaching industry and later become part of the teaching profession.

According to Osafechinti (1999), individuals use the teaching profession, as a stepping stone to their own profession. These class of individuals who realize themselves in classroom teaching, continuously claim to be teachers.Ciwar (2003), opined that expertise in teaching offers theoretical and realistic information, ethical codes of conduct, continuous in-service development and essential service to society. These characteristics bring improved quality of teaching to the general public image of the teacher in the academic accomplishment of pupils; which is a strong foundation of a nation. Surveys conducted by researchers have proven that, academic accomplishment or performance of pupils could be a major concern of academics, pupils, parents, guardians and stakeholders in Sierra Leone.

Teachers are key in pupils' accomplishment. Their vital roles in pupils' educational attainment, facilitate and transform their lives of a nation. Therefore, these academics want motivation from oldsters, and also the government. Characteristic attributes of a teacher just like the teacher education level, years of teaching expertise and behaviour to pupils within the classroom are key determinants of pupils' academic accomplishment. These attributes are excellent concerns of parents, teachers and policymakers of Sierra Leone.

1.1 Statement of the Problem

The purpose of this study is to investigate the impact of teacher education level, years of teaching experience and teachers' teaching behaviour as determinants of pupils' academic achievement in integrated science in Eastern Sierra Leone between the periods 2005-2007.

1.2 Objectives of the Study

i. Determine the extent to which teachers' education level impact pupils' integrated science accomplishment at the junior school.
ii. Determine the extent to which teachers' years of expertise in integrated science teaching impact pupils' integrated science accomplishment.
iii. Determine whether or not the teachers' teaching behavior variables (teacher room engagement with pupils, teacher room management, and teaching strategies) impact pupils' integrated science accomplishment at the junior secondary school.

1.3 Research Questions

i. To what extent do teachers' education level impact pupils' integrated science accomplishment at the junior secondary school?
ii. To what extent do teachers' years of expertise (experience) impact pupils' integrated science accomplishment at the junior secondary school?
iii. Do teachers' teaching behaviour variables (teacher room engagement with pupils, teacher classroom management, and teaching strategies) impact pupils' integrated science accomplishment at the junior secondary school?

2.1 Review of Related Literature

Academic Achievement

Igberadja (2016), in a study administered, outlined academic accomplishment or performance as students' success in learning mere information content as disclosed by continuous assessment and examination. What more, he cited in (Adediwura and Tayo 2007) was that, academic achievement is selected by checks and examination scores or marks allotted by the teacher. Aremu (2001) on the opposite side outlined academic accomplishment as the basic premium upon which all teaching and learning activities are measured. Furthermore, Levin, Wasanga and county (2011), opined that the educational accomplishment of pupils at secondary school level is not solely a pointer of the effectiveness of schools, however, additionally a serious determinant of the well-being of youths particularly and the nation generally.

Teacher Education Level

Teacher education level, refers to the best qualification obtained by an educator. In keeping with (Abe 2014), teacher qualification impacts on pupils' instructional accomplishment. To him, there are three ways within which teacher qualification is quantified. That is, level of education, years of (experience) in preparation of subject material and pedagogy; and Certification in their on-going skilled development.

There is keen distinction between teacher quality and quality teaching. The previous refers to the information, skills, abilities, inclinations, attitudes and values. The latter refers to what is really drained follow. Such follow results from an interaction between those aspects of teacher quality in a specific context. Victorious teaching depends on many factors, beside the extent of instructional resources offered, staffing levels, continuing development and support. Teacher quality is rising as "the most significant ingredient in students' achievement" in keeping with studies dispensed by (Proetheroe, Lewis and Paik 2002).A lot of research have conjointly established the fact that teachers' characteristics or variables could inhibit or hinder effective subject delivery.

From the perspective of Abe (2014), these variables embody teachers' qualification, experience, and gender. Owolabi and Adebayo (2012) examined the result of teacher's qualification on the performance of senior school students in physics. The results showed that students instructed by teachers with higher qualifications perform higher than those instructed by teachers with lower qualifications.

Nwosu (2000) investigated the connection that exist between the qualification of science teachers and students' educational performance in science subjects. The study discovered that there a big

relationship that exist between teacher level of education and students' educational performance in science subjects.

In a similar study administered by Kifunya (2010) on teachers' characteristics and their effects on students' achievements in chemistry, the findings disclosed that teacher characteristics were additional potent in predicting students' performance. There is conjointly proof that ineffective teaching have a long-lasting impact on students' academic levels. In keeping with Otuka, Okebukola and Jegede (1994) science teachers' educational qualification is a factor accountable for students' performance within the sciences.

Zuzovsky (2003) discovered that one of the foremost necessary thought about the teaching method is the qualification of the teacher. Thomas and Olugbenga cited in Ajayi (2009) showed that, the skilled qualities of a teacher have to do with the following:

- Mastery of the topic matter
- Sense of organization
- Ability to clarify ideas
- Ability to inspire students
- Good imagination
- Management of the main points of learning

According to Agyeman (2003), a teacher who do not have the requisite education and skilled qualification would have a negative influence on teaching/learning of his/her subject that successively affects the performance of students. Teacher quality is rising as "the most significant ingredient in students' achievement" in keeping with studies dispensed by (Proetheroe, Lewis & Paik 2002).

A lot of research have conjointly established the fact that teachers' characteristics or variables could inhibit or hinder effective subject delivery. From the perspective of Abe (2014), these variables embody teachers' qualification, experience, and gender. Owolabi and Adebayo (2012) examined the result of teacher's qualification on the performance of senior school students in physics. The results showed that students instructed by teachers with higher qualifications perform higher than those instructed by teachers with lower qualifications.

Years of Teaching of a Teacher (Teaching Experience)

Another issue that enhances teacher quality is expertise. Teaching expertise refers to the number of years a teacher has taught. Studies carried out by scholars have confirmed that when students are engaged with an experienced teachers it impact on their comprehension of content of their study than those with less experienced (US Department of Education 2000). Empirical findings have also shown that teachers who teach within their field of specialization or where they received their coaching participate in high-quality induction and skilled development programs, measure more practical than those that do not (US Department of Education 2000).

There's a big distinction between the performance of students nurtured by experienced teacher and students nurtured by inexperienced teacher. Bolarinwa (2014) investigated the connection that exists between teachers' characteristics (qualification, years of experience) and students' performance level in SSS. Findings discovered that there is positive relationship that exists between teachers' characteristics (Qualification and Experience) and performance level of

students. Kiptum (2011) in his survey, cited Yala and Wanjohi (2011) and Adeyemi (2010) found out that teachers' expertise and educational qualifications were the prime predictors of students' academic performance.

He additionally cited Usman (2003) who asserted that shortage of qualified teachers could be responsible for poor academic achievement evident among pupils, whereas (Ademulegun 2001) argued that students who are taught by qualified and experience teachers in terms of information of the topic matter perform higher than those less qualified teachers.

From a survey report from Ilugbusi, Falola and Daramola (2007) teaching expertise in school count considerably within the determination of pupils' achievement. According to them, inexperienced teachers could get confused, mixed up the content of the topics taught to the students and hence the students will receive wrong information which would definitely lead to poor achievement among the students, while the experienced teachers are already immune to classroom provocative situations.

Teacher Behaviour Variable

Teachers are the pillar of support for the high and satisfactory academic achievement of pupils. Teachers confirm the training of their pupils by setting high standards for his or her education by providing tributary and healthy surroundings for them. Idris, Hussain and Ghaffar(2021) cited Uddin et al.,(2018) refers to teachers' behaviour as the means teachers act and teach, facilitate and deal with in a survey report showed that students in their pursuit for learning. It's the mixture of each verbal and non-verbal acts that teachers show and propagate throughout the teaching/learning method.

Babad (2009) asserted that performance or academic achievement of students is an extension of the ways they are dealt and behaved by their teachers. Students who are under the supervision of friendly and supportive teachers always tend to do well academically. On the other hand, Urhahne et al., (2011) stated that, those teachers who are harsh and rigid have students with low academic performance, while students who are in the classes of emotional stable teachers do well in their exams and show good academic achievement (Urhahne, 2015).

Teachers use totally different behaviours in giving education to their pupils. Some give accessory learning surroundings for their kids whereas few others simply teach. This approach is a vital determiner of students' educational performance. UNESCO (1986) outlined behaviour as a way to conduct or carry oneself or what we tend to do, particularly in response to outside stimuli. As evident, educational behaviour of teachers within the schoolroom is indicative of their teaching effectiveness. Classroom management methodologies are important part of a teacher's success in making a secure and effective learning setting for educational activity. Therefore, teachers ought to their knowledge and apply methodologies that would enable and conjointly facilitate students' learning (Zuckerman, 2007). For effective schoolroom management to exist in secondary schools, principals should ensure that they perform their higher-up roles effectively.

Kimeu (2010) asserts that the overall high performance would be accomplished in schools if principals perform their management role. Among this could be enclosed checking of learners' books to determine that lesson notes are checked, assignment given are marked, and class attendance is regular by class teachers

Idris, Hussain and Ghaffar (2021) cited in Hattie (2012) thoroughbred that teachers' pedagogies and schoolroom environments ought to be accessory and friendly to confirm the utmost educational action of pupils.

3.0 Methodology

The research design employed during this study was descriptive research type of a survey design. The aim to use descriptive survey analysis technique was to get pertinent and precise data regarding this standing of development and where doable to draw valid general conclusions from facts discovered.

Study Area

The study was undertaken in the Republic of Sierra Leone. Republic of Sierra Leone shares border with Republic of Liberia and Guinea. As Per 2014 Population and Housing Census, Republic of Sierra Leone has population of 7,000,000. There are sixteen ethnic groups within the country that make up 90% of the population.

The Mende, Themne and Limba form the greatest proportion of the ethnic groups. In Sierra Leone, English is the official means of communication. Christianity and Islam are the predominant religions practiced by the citizens. The study was specifically carried out in the junior secondary schools between the periods 2005 and 2007 in the Eastern Region of the Republic of Sierra Leone The region contains three major districts, namely: Kailahun, Kono and Kenema. The study centered on Junior Secondary Schools that comprised of strictly boys' schools, strictly girls' schools and co-educational schools. Co-educational schools provided, allowed the study to determine the preference of pupils' gender once each boys and girls are taught underneath the same learning atmosphere. The information assortment was done among the JSS2 and JSS3 pupils who have been within the selected schools between the periods 2005 and 2007.

The Criterion for choosing the pupils was supported by the actual fact that they had been in the very schools with a minimum of two years and will offer relevant data on the impact of teachers' education level, years of integrated science teaching expertise and also the teaching behaviour of integrated science teachers that is the thrust of the study.

Upon making certain the validity and dependability of the analysis instrument, the primary data was obtained using structured questionnaires. The questionnaires were administered to twenty seven Integrated Science HODs, fifty four Integrated Science teachers and 270 JSS3 pupils sampled for the study. This study used descriptive statistics to analyze the quantitative data obtained through pupils' and teachers' questionnaires using Statistical Package for Social Scientists (SPSS).These findings were conferred in frequency tables and charts.

4.0 Results and Discussions from Empirical Investigation

From Table 1, twenty seven questionnaires were administered to HODs, fifty four Integrated Science teachers and 270 JSS pupils concerning the impact of teachers' instructional level, years of teaching and the teaching behaviour of integrated science teachers as determinant of pupils' academic achievement.

It is ascertained that 100 percent of the HODs within the three districts of the Eastern Region, 51(94%) of the integrated science teachers and 245(90.7%) of the JSS pupils completed the questionnaires. According to Kothari (2006), a response rate of 0.70%, adequately represents the

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sample. The general response rate of 92% was accustomed to generalize to the whole population of the study.

Table 1:

Number of Questionnaires Administered and Number Returned

	Number Administered			No. and % of Questionnaires Returned					
District	**HODs**	**Int.Sc Trs.**	**Pupils**	**HOD**	**%**	**Trs**	**%**	**Pupils**	**%**
Kailahun	09	18	90	09	100	18	100	85	94
Kenema	10	20	100	10	100	18	90	80	80
Kono	08	16	80	08	100	15	94	80	100
Total	27	54	270	27	100	51	94	245	90.7

Research Question 1: To What Extent do Teachers' Education Level, Impact Pupils' Integrated Science Achievement at the Junior Secondary School?

The study sought to determine the extent to which teachers' education level, impact pupils' integrated science achievement at the Junior Secondary School with the aim of determining their levels of teaching competence. As indicated in the table, the demographic attribute of age has linkage with personal experiences.

Age Distribution of Heads of Integrated Science Department and Integrated Science Teachers in the Selected Junior Secondary Schools

Based on the findings in Table 2, the study reveals that in the Eastern Region, the HODs have equal percentage (34.78%) of the respondents that fell within the age bracket (21-30) years and 41-50) years respectively. There were 25.93% of the respondents that fell within (51-60) years.The findings further reveals on the part of the integrated science teachers that 39.22% fell within (21-30) years, 33.34% fell within (31- 40) years, 21.57% fell within (41-50) years and 5.89 % fell within (51- 60) years. This shows that higher percentages (39.22% and 33.34%) of the teacher were within the age brackets (21-30) years and (31- 40) years respectively

Table 2:

Age Distribution of Integrated Science Heads of Department and Teachers in the Selected Junior Secondary Schools

DISTRICT	***Age Response***				***Age Response n= 51***			
	Integrated Science Heads of Depart n=27				***Integrated Science Teachers n=51***			
	21-30	***31-40***	***41-50***	***51-60***	***21-30***	***31-40***	***41-50***	***51-60***
Kailahun	05	01	02	01	06	07	00	00
Kenema	02	01	06	01	05	09	04	00
Kono	01	02	01	04	09	01	02	03
TOTAL	08 (34.78)	04 (14.81)	08 (34.78))	07 (25.93))	20 (39.22)	17 (33.34)	11 (21.57)	03 (5.89)

Figures in Parentheses are Percentages

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Educational Level of Integrated Science Heads of Department and Teachers in the Selected Junior Secondary Schools

Educational level in the study refers to the highest qualification obtained by respondents. These qualifications include Higher Teacher Certificate (Primary) (HTCP); Higher Teacher Certificate (Secondary) (HTCP); Bachelor of Education (B.Ed); Bachelor of Science in Education (B.SC.Ed); Master of Education (M.Ed) and Master of Science in Education (M.Sc.Ed.).The study reveals in Table3 that the highest qualification obtained amongst the HODs is B.Sc.Ed degree (37.03%) followed by those with HTCP (25.93%) and HTCS (22.22%) respectively. The study further confirms on the part of the teachers teaching integrated science that majority (47.05 %) obtained HTCS and B.Sc (27.45%) respectively.

The high number of teachers with degree is as a result of the minimum requirement by Teaching Service Commission (TSC) who is the major employer of secondary school teachers in Sierra Leone.

The study further reveals that most of the Integrated Science teachers are professionally qualified with just a few with HTCP who are trained to teach in the primary schools. However, the presence of HTCP teachers is an indication that the teaching field still accommodates people with primary sector teachers who do not have the requisite professional knowledge. It cannot therefore be contested if one posits that this is one of the reasons for high failure of candidates in Integrated Science in public exams

Table 3:

Educational Level of Integrated Science Heads of Department and Teachers in the Selected Junior Secondary Schools

	Educational Level Response n= 27						**Educational Level Response *n= 51***					
	Integrated Science Heads of Department						**Integrated Science Teachers**					
DIST.	***HTCP***	***HTCS***	***BED***	***BSC***	***MED***	***MSC***	***HTCP***	***HTCS***	***BED***	***BSC***	***MED***	***MSC***
Kailahun	04	02	01	02	00	00	04	08	02	04	00	00
Kenema	02	04	01	03	00	00	02	09	01	06	00	00
Kono	01	00	02	05	00	00	03	07	01	04	00	00
TOTAL	**07 25.93%**	**06 22.22%**	**04 14.18 %**	**10 37.03 %**	**00 0.0 %**	**00 0.0 %**	**09 17.64 %**	**24 47.05 %**	**04 7.84%**	**14 27.45 %**	**0 0.0%**	**0 0.0%**

Educational Level and Area of Specialty of Integrated Science Teachers

Table 4 shows the highest qualifications and subject area of specialization of Integrated Science teachers. In the Eastern Region, the study shows that 13.73% have HTC(S) in Integrated Science, 7.81% in the basic sciences. Majority of these teachers were also trained in other subjects and had the highest percentage (17.65%) of Untrained and Unqualified Teachers. The implication is that the highest percentage, (26.26%) of the teachers of the survey have HTC(S) and were trained in Integrated Science. This is a clear indication that a very good percentage of Integrated Science teachers of the survey are trained and qualified but they are qualified in other subjects and employed to teach Integrated Science in these schools. This obtains due to scarcity of real trained and qualified Integrated Science teachers. The findings confirms the assertion of Jegede (1982),which affirms that Integrated Science teachers are mostly produced by teacher colleges and

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that most of the University graduates are qualified in other sciences like mathematics and Physics and they are found teaching Integrated Science in which they are not trained

Table 4:

Educational Level and Area of Specialty of Integrated Science Teachers

Region	District	Qualification Response											
		HTCP		HTCS		B.Ed		B.Sc.		Diploma		WASSCE	
		Int. Sc	Others	Int. Sc	Others	Int. Sc	Others	Int. Sc	Others	Int. Sc	Others	Int. Sc	Others
Eastern n = 51	Kailahun	01	03	02	04	00	02	01	03	00	01	01	00
	Kenema	02	-	05	04		01	03	01		01	01	
	Kono	01	02		01		01		01		02	07	
	Total	**04 (7.81)**	**05 (9.81)**	**07 (13.73)**	**09 (17.65)**	**00 (0.00)**	**04 (7.81)**	**04 (7.81)**	**05 (9.81)**	**00 (0.00)**	**04 (7.87)**	**09 (17.65)**	**00 (0.00)**

Figures in Parentheses are Percentages

Number of Trained and Qualified Integrated Science Teachers in the Junior Secondary Schools

Table 5 indicates number of qualified Integrated Science teachers. From the table, 48.73% were trained and qualified from the East. The table further shows that there are more (43.94%) Untrained and qualified Integrated Science teachers in the region, though few (8.23%) are trained and unqualified. These untrained and unqualified integrated science teachers include those who do not have the requisite professional qualification to teach integrated science, they only sat to the GCE or WASSCE and were employed in the schools due to lack of qualified teachers. Some were employed as voluntary teachers.

Table 5:

Frequency Distribution of Trained and Qualified Integrated Science Teachers in the Selected Schools

Region	District	Qualification Response		
		TQ	TU	UU
Eastern	Kailahun	25	08	18
	Kenema	33	01	24
	Kono	19	04	26
	Total	**77 (48.73)**	**13 (8.23)**	**68 (43.04)**

Figures in Parentheses are Percentages

Key: TQ=Trained and Qualified; TU=Trained and Unqualified; UU=Untrained and Unqualified

***Research Question 2:* To What Extent do Teachers' Years of Expertise Impact Pupils' Integrated Science Accomplishment at The Junior Secondary School?**

Professional Experiences of Integrated Science Heads of Department in the Selected Schools

Table 6 shows the results of the professional experiences of Integrated Science Heads of Department in the selected schools in the Eastern Region. Majority (25.93%) of the experienced Heads of Integrated Science Department had (5-9) years of experience and equal; (22.23%) of the sample have (10-14) years and (15-19) years' experience respectively. It was observed that

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majority of these heads; at least 22 had experience from 5 years to thirty (30) years and above. This implies that the selected heads of department of the survey have experiences ranging from 5 years to 30 years and above. This is an indication that they could use their vast number of years of experience to improve on the academic performance of pupils in integrated science in the various schools

Table 6:

Professional Experiences of Integrated Science Heads of Department in the Selected Junior Secondary Schools

		Experience Response						
Region	**District**	**0-4yrs**	**5-9yrs**	**10-14yrs**	**15-19yrs**	**20-24yrs**	**25-29yrs**	**30yrs +**
Eastern n=27	Kailahun	00	05	02	02	00	00	00
	Kenema	01	01	03	03	00	01	01
	Kono	01	01	01	01	01	03	00
	Total	**02 (7.41)**	**07 (25.93)**	**06 (22.23)**	**06 (22.23)**	**01 (4.35)**	**04 (14.82)**	**01 (4.35)**

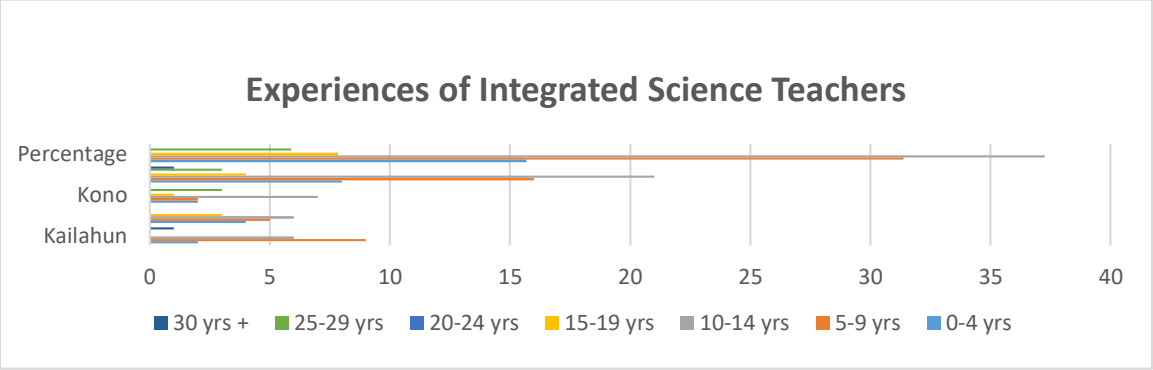
Figures in Parentheses are Percentage

Professional Experiences of Integrated Science Teachers in the Selected Junior Secondary Schools

Figure2 represents the teaching experiences of Integrated Science teachers of the selected schools. As illustrated in the Figure 2 below, in the Eastern Region, the concentration (37.26 %) of teachers with experiences fell within (10-14) years followed by (5-9) years with (31.38%). There was no teacher with (20-24) years of experience in all the districts of the Eastern Region. Only (1.96%) from Kailahun District had 30 years and above experience

Figure 1:

Bar Chart Showing Years of Teaching Experiences of Integrated Science Teachers



Pupils Demographic Information

The personal characteristics of the pupils highlighted here is their age distribution, which also determines the pupils ability to concentrate and practice the subject. The personal characteristics

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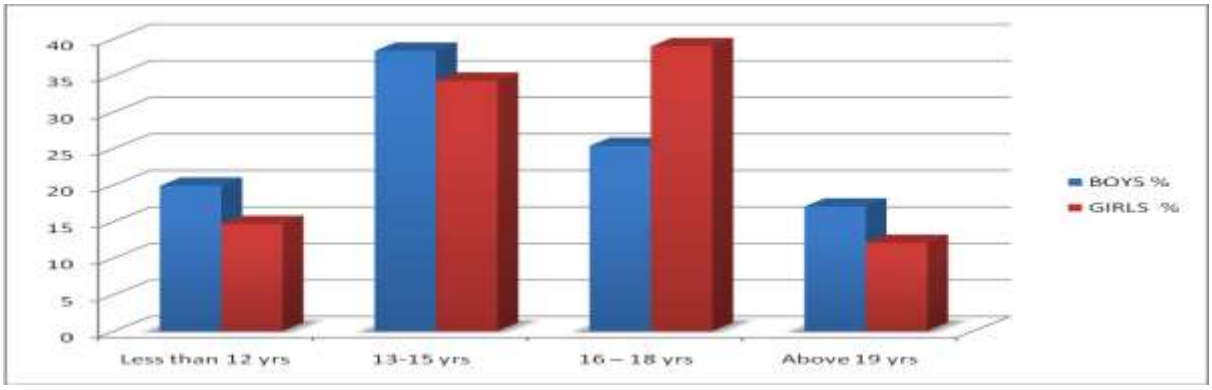
of the pupils highlighted here is their age distribution, which also determines the pupils ability to concentrate and practice the subject. As presented in chart below, majority of the pupils (25.37%) of the boys and (39.00%) of the girls fell within (16-18) years.

It is observed that only (19.9 %) of the boys and (14.66%) of the girls were less than 12 years of age. However, 17.06% of the boys and 12.07% of the girls were above 19 years of age. As a matter of educational policy according to the Education Policy 1995, a child is expected to start primary school at age (6) and after the first phase of the primary education which terminates at age (12), the pupil can enter Junior Secondary School.

It is believed that at this age, the pupils have the ability to read alone, learn and practice the subject taught. According to the findings, majority (38.38%) of the pupils were in the ideal and active age range of (13-15) years to do independent study. The slight variation in percentage between boys and girls does not constitute an impediment in the learning of Integrated Science in schools. On the other hand, education has motivated these children to enroll in schools

Figure 2:

Bar Chart Showing Pupils Demographic Information



Research Question 3: Whether Teachers' Teaching Behavior Variables Impact Pupils' Integrated Science Achievement

Teachers' teaching behaviour variables refer to teacher classroom engagement with pupils, teacher classroom management and teaching strategies.Table7 indicates responses of expected professional practices of integrated science teachers and how they are observed. The responses indicate from 20% to 92% (under Always); 7% to 51% (under sometimes); 0% to 7% (under rarely); and 1% to 15% (under never) for all items. The results on the whole reveal that teacher professional practices are expected of integrated science teachers, though the opinions expressed by the respondents do vary from one item to another. Example 96% of the respondents responded that they write lesson plan for each lesson they teach, 99% give assignment on each topic taught, 98% mark students' test and hands them back to the students. 91% attend departmental meetings called by HODs, 98% arrive on time in class to teach and 95% do not attend professional development activities. The results of the table indicate good professional habits demonstrated by Integrated Science teachers.

Table 7:

Distribution of Responses on Teachers' Teaching Behaviour Variables

	How it is observed by Integrated Science Teachers			
Professional Practice of Integrated Science Teacher	**Always %**	**Sometimes %**	**Rarely %**	**Never %**
1. Write lesson notes for each lesson	65	21	07	07
2. Give pupils assignment on topics taught	92	07	00	01
3. Mark pupils tests/exams and hands them back to them	89	09	02	00
4. Provide their own reference books for teaching.	20	48	17	15
5. Attend departmental meetings called by HODs	40	51	07	02
6. Attend In-service training Programmes	02	03	00	95
7. Regular in school and class to teach	70	28	03	02
8. Spend time in the evening and over weekends on school work.	38	44	12	6
9. Spend time during holidays on school related work	24	50	15	11
10. Regularly monitor the pupils' academic work.	55	30	10	05

Pupils' Evaluation of Their Integrated Science Teachers

As indicated in Table 8, the Junior Secondary Schools pupils who participated in the study claimed that Integrated Science teachers are engaged in all listed negative attitudinal practices. Worthy of note is those items in which a greater proportion of the students at least 60% upheld the view that integrated science teachers come late to class (item 1); Integrated Science teachers stay in the staff room when he/she is scheduled to be in class (item 3); Integrated Science teachers hit their students (item 4); integrated science teachers come to class without preparing for the class (item 5) and integrated science teachers abandon their classes for other outside purposes (item 6).

Regarding the extent to which the unprofessional attitude are accepted, the table reveals that all the listed teachers conduct or attitude were never acceptable behaviours to the students in the teaching and learning process. These findings notwithstanding, one could observe some discrepancies between what students say is accepted and what is done by the teachers as indicated by the students. Example, 89% of the students maintained that integrated science teachers come to class late to teach even though only 41% said such a practice is never acceptable in the teaching process. It is also surprising to see that 90% of the students saying their teacher goes away on his own business and leaves the pupils on their own in class, while almost 44% said that is never acceptable. This implies that even though these teachers know that some of these activities are unacceptable, they still engage in them.

Table 8:

Distribution of Responses of pupils' Evaluation of Their Integrated Science Teachers.

	Behaviour of Integrated Science Teacher			**The Extent of the Accepted Behaviour**		
Teacher Behaviour Variable	**Always %**	**Occasionally %**	**Never %**	**Often %**	**Occasionally %**	**Never %**
Teacher comes to School late	35	54	11	04	55	41
He comes to class drunk	11	29	60	00	02	98
He stays in the staff room when he/she is scheduled to be in class	20	50	30	00	20	80
He is harsh with pupils	12	58	30	00	38	62
He comes to class unprepared	20	50	30	00	15	85
He goes away on his own business and leaves pupils to work on their own.	30	60	10	26	28	44
He scolds pupils for asking question in class	5	33	62	05	17	78
He leaves school before time without asking permission	8	36	56	01	09	90
He makes sexual advances to the girls	10	36	54	01	01	98
He gives higher/ lower marks to pupils he doesn't like.	10	26	64	01	05	94

5.0 Conclusions

Based on the findings, the researcher concluded that majority of the teachers trained from the teacher training colleges with Higher Teachers Certificate (Secondary) and Higher Teachers Certificate (Primary) together with University graduates were specialized in specific basic science subjects instead of the three basic science subjects. These made the teachers bias in teaching only areas in which they specialized. This resulted in an unbalanced coverage of the teaching syllabus, thereby reflecting on students' performance in external exams in the subject.

Higher percentages (39.22% and 33.34%) of the teachers were within the age brackets (21-30) years and (31- 40) years respectively. The selected heads of department and teachers of the survey had experiences ranging from 5 years to 14 years. This is an indication that they could use their vast number of years of experience to improve on the teaching and learning of Integrated Science in their various schools.

6.0 Recommendations

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

Professionally trained and qualified Integrated Science teachers should be employed to teach the subject; this would remove the biasness which specialists in the basic sciences (Physics, Chemistry, Biology) may have when employed to teach Integrated Science.

The school authority should also make sure that teachers make use of adequate teaching aids and encourage them to improvise equipment where necessary.

Government should provide better conditions of service and incentives to retain the existing qualified teachers teaching integrated science in the JSS. Academic performance of students should be a requirement for teachers' promotion exercise.

REFERENCES

Abe, T.O. (2014). Effect of Teachers' Qualifications on Students' Performance in Mathematics.*Sky Journal of Education*, Volume *2*(1)

Adediwura, A. A. & Tayo, T. (2007). Perceptions of Teacher Knowledge, Attitude and Teaching Skills as Predictor of Academic Performance in Nigerian Secondary Schools. *Educational Research and Review*, 2(7): 165-17

Ademulegun, D. (2001). Monitoring learning achievement of junior secondary school students in Lagos State. A prototype of state assessment. Unpublished Ph.D Thesis. University of Ibadan

Adeniyi S, 1993, Role of the teacher in the performance of a learner, Summer / Conference proceedings New York

Adeyemi B (2010). Teacher Related Factors as Correlates of Pupils Achievement in Social Studies in South West Nigeria. Electronic J. Res. Educ. Psycho. Vol. 8(1): 313-332.

Ajayi S, 2009, *Professional qualities of a well-trained teacher*, Kings College London.

American Association for the Advancement of Science. (1993). *Benchmarks for Science Literacy*. NewYork, : Oxford University Press.

Aremu, O. A & Sokan, B. O. (2003). A multi-causal evaluation of academic performance of Nigerian learners: Issues and implications for national development. Department of Guidance and Counselling, University of Ibadan, Ibadan.

Babad, E. (2009). Teaching and nonverbal behavior in the classroom.*International handbook of research on teachers and teaching*, 817-827. https://doi.org/10.1007/978-0-387-733173_52

Ciwar, A.M. (2003). *Teachers Registration as a Vehicle for Professionalization of Teaching*. Prospect and Challenges, NAC Seminar Series No. 4 Lagos.

Ciwar, A.M. (2003). *Teachers Registration as a Vehicle for Professionalization of Teaching*. Prospect and Challenges, NAC Seminar Series No. 4 Lagos.

Darling-Hammond, L. (2002). Teacher quality and student achievement: A review of state policy Evidence. *Educational Policy Analysis Achieves*, *8*(1)

Hattie, J. (2009). *Visible Learning: A synthesis of over 800 meta-analyses relating to achievement*

http://www.nap.edu/pdf/0309074207/pdfimage/33.pdf

Idris, Hussain, & **G**haffar (2021). Influence of Teachers' Behavior on Students Academic Achievement at Secondary Level. Ilkogretim Online - Elementary Education Online, Year; Vol 20 (Issue 5): pp. 1208- 1214. https://doi.org/10.17051/ilkonline.2020.02.31

Ilugbusi, A.A.; Falola, E.O. and Daramola, M.A. (2007). Relative effects of demographic variables on levels of anxiety of integrated science trainee teachers in junior secondary school in Ekiti State. *Journal of Educational Focus, 1*(1), 88-95

Kimeu, J. (2010). Influence of Secondary School Principals Instructional Supervision Practices on KCSC Performance M. Kasikeu Division, Mukaa District Kenya Unpublished thesis

Lewin, K. M., Wasanga, P., Wanderi, E. & Somerset, A. (2011). Participation and Performance in Education in Sub-Saharan Africa with Special Reference to Kenya: Improving Policy and Practice.Create pathways to Access. *Research Monograph No. 74*: University of Sussex. London: Routledge

Nwosu, V. E. (2005). The Level of Acquisition of Science Process Skills among Chemistry Students in Awka Education Zone. Unpublished M.Sc. Thesis, Nnamdi Azikiwe University, Awka.

Proetherue et al (2002). *"Promoting Quality Teaching*".ERS Spectrum Winter.

U.N.E.S.C.O. (1986). *A Handbook for Biology Teachers in Africa* Paris: United Nations Educational, Scientific and Cultural Organization, 1986.

Urhahne et al., (2011). Academic self-concept, learning motivation, and test anxiety of the underestimated student. *British Journal of Educational Psychology, 81*(1), 161-177. https://doi.org/10.1348/000709910X504500

Urhahne, D. (2015). Teacher behavior as a mediator of the relationship between teacher judgment and students' motivation and emotion.*Teaching and teacher education, 45*, 73-82. https://doi.org/10.1016/j.tate.2014.09.006

Yala, P. O. & Wanjohi, W. C. (2011). Performance Determinants of KCSE in Mathematics in Secondary Schools in Nyamira Division, Kenya. *Asian Social Science, 7*(20): 107-112. https://doi.org/10.5539/ass.v7n2p107

Zuzovsky, R. (2003). Teachers' qualifications and their impact on student achievement : Findings from timss 2003 data for Israel. IERI Monograph Series: Issues and Methodologies in Large-Scale Assessment, 2003(Timss), 37–62.