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Correlarelate of Teachers Profiles and Pupils Academic Achievement

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Abstract: This study examined correlate of teacher's profiles and academic achievement of primary school pupil's. It drawn on 250 primary schools pupils and 50 teachers from 5 primary schools in Epe, Lagos State, Nigeria. Data was collected through teacher's profile questionnaire and pupil's achievement test. Three hypotheses were developed and tested. Data collected were analysed using Pearson Correlation Method. The results indicate generally that relationship exists among the 3 teacher's profile focused on the study (teacher's self-efficacy, teacher training and teacher's attitude) and pupil's academic achievement.

Key words: Teacher's profile, teacher's variables, teacher's characteristics, academic achievement, primary school, pupils, Nigeria

INTRODUCTION

Over the years, observations have shown that many factors can be accountable for pupil's achievement in school. According to Tella *et al.* (2007), some of these factors have been researched and studies with findings confirming their relationships to achievement. Part of these factors also includes teacher's profiles, which can mean teacher characteristics or teachers variable. Ackerman *et al.* (2006) asserted that these profiles include characteristics of teachers such as: Teacher training, teaching experiences, pedagogical practices and professional development. The interaction among these characteristics to them can be used to identify the greatest determinates of student achievement.

Agyeman in Tella (2006) reported that a teacher who doesn't have both the academic and the professional teachers qualification would undoubtedly have a negative influence on the teaching and learning of his/her subject. However, he further stated that a teacher who is academically and professional qualified, but works under an unfavourable conditions of service would be less dedicated to his work and thus be less productive than a teacher who is unqualified but works under favourable conditions of service.

Ackerman *et al.* (2006) identified 4 teacher profiles. These include (teacher training, teaching experience, pedagogical practices and professional development) and these are recognized as determinants of student achievement. Within each profile are attributes or characteristics of teachers that are variables that shape and define the profile. The Teacher Training Profile describes several elements that determine the quality of teacher training. These include content degree, degree level, content and pedagogical preparation and content knowledge Ackerman *et al.* (2006). According to these authors the next profile is comprised of years of teaching experience. The 3rd profile is a combination of variables that shape teachers' pedagogical practices and is the most complicated of all profiles. These variables include teachers' pedagogical paradigm [traditional or constructivist], teachers' motives or purpose for teaching, teachers' instructional methods [technology use, nature of the task {individual or collaborative} and cognitive level of the task {Levels 1, 2, or3}], teachers' homework instructional methods [frequency, accountability and cognitive level of the task {Levels 1, 2, 3}] and teachers' assessment approaches [traditional or constructivist]. The fourth teacher profile is the professional development profile which measures the content, purpose for participation, type and Teacher Effect Model 6 frequency/amount of professional development training teachers have participated. The interaction between and among these four profiles are factors in determining overall student achievement. This model is designed to define profiles so that variables can be controlled; thus, changes can be measured over time. This perspective allows researchers to understand the affects of professional development and how it changes pedagogical practices.

From this study, it is clear that Ackerman *et al.* (2006) identified teacher training, teaching experience, pedagogical practices and professional development. It should be noted that there more teachers profiles which

could also influence pupils achievement. These include teacher's attitude, teacher's qualification, teacher's self-efficacy and interest. This study will consider 3 of these profiles and examine how they relate with pupils achievement. These profiles are teacher's self-efficacy, teachers training and teacher's attitude. These 3 were chosen because much has not been researched on them particularly with reference to Nigeria and Africa in Nigeria. It is hope that the findings of this study will serve as an empirical basis for relevant research and contribute to literature review in the area of pupil's achievement.

Researches have identifies many factors affecting student achievement (Zuelke, 2001), however, the greatest determinant of student achievement is the influence of teachers (Collias *et al*., 2000; Lasley *et al*., 2006; Sanders and Rivers, 1996). Studies have found that the majority of the difference in student tests scores can be directly attributed to teacher quality (Darling-Hammond and Ball, 1997). Thus, the impact of teachers can either be positive or negative depending on teacher quality as defined by various teacher characteristics. The effect teachers have on student achievement depends upon teacher training, teaching experience, pedagogical practices and professional development experiences (Ackerman *et al*., 2006). This study focus only on 3 teachers profiles. These are as follows:

Teacher self-efficacy: Self-efficacy as a teacher, on the other hand, is a powerful predictor of how and whether a teacher will act. Self-efficacy is the belief that one is capable of exercising personal control over one's behaviour, thinking and emotions. Effective teachers believe that they can make a difference in children's lives and they teach in ways that demonstrate this belief. What teachers believe about their capability is a strong predictor of teacher effectiveness. People who hold strong self-efficacy beliefs tend to: Be more satisfied with their job (Trentham *et al*., 1985), Demonstrate more commitment (Trentham *et al*., 1985) and have lower absenteeism (McDonald and Siegall, 1993). Teachers who have high self-efficacy tend to: Persist in failure situations (Gibson and Dembo, 1984), take more risks with the curriculum, use new teaching approaches (Gibson and Dembo, 1984), make better gains in children's achievement (Brookover *et al*., 1979) and have more motivated students (Midgely *et al*., 1989).

Teacher training: The Elementary and Secondary Education (NCLB) America in 2001 requires that all classrooms have a highly qualified teacher by 2005-2006. NCLB defines highly qualified as a teacher holding a bachelor's degree in any subject, full licensure or certification and successful completion of a content knowledge test or content major. Teacher training is not limited to an academic degree or licensure, it also includes subject-matter knowledge and content specific pedagogical preparation. As a result, a correlation exists between academic degree and licensure. An underlining expectation is that there must be compatibility between the two and one informs the other. Content knowledge and pedagogical knowledge are not mutually exclusive (Capraro *et al*., 2002; Cooney, 2003; Quinn, 1997) and are essential for building pedagogical content knowledge which greatly impacts teacher effectiveness. Thus, teacher licensure includes rigorous content area preparation, either in the form of a degree, major, or adequate performance on a subject area test and pedagogical training relevant to the grade levels and content of certification. The quality of teacher training, especially in elementary and middle grades programs, has been criticized because it is believed that these programs are not adequately preparing teachers in content. Researchers tout that teacher content knowledge is sacrificed for pedagogical training and is not comparable to the depth of training of those seeking content only degrees (Ball, 1990; Rech *et al*., 1993; Tirosh and Graeber, 1989). Specific content area weaknesses are recognized in areas of math and science (Capraro *et al*., 2002). This was affirmed by Southern Regional Education Board (Cooney, 2003), in a study of fourteen states, found that the majority of K-8 teachers were lacking in the math and science content knowledge and had only received general content training as part of their elementary education degree. This is of concern when research indicates that teachers' content knowledge is definitively linked to student performance (Goldhaber and Anthony, 2003; Goldhaber and Brewer, 1999; Lasley *et al*., 2002). Monk (1994) conducted a study of approximately 3000 high school students who had taken tests in mathematics and science. Demographic information on the students was provided. The teachers of the students were then surveyed on the number of content courses they had received and their responses were correlated with student outcomes. Students whose teachers had taken a greater number of mathematics and science courses scored higher on the math and science assessments. Goldhaber and Brewer (1999), Quinn (1997) and Zuelke (2001) found similar relationships in their analysis.

Teachers attitude: Attitudes are generally regarded as having been learnt. They predispose an individual to action that has some degree of consistency and can be evaluated as either negative or positive (Fishbein and Ajzen, 1975; McMillen *et al*., 2000). Caraway's (1985) data

revealed that mathematics competency and achievement were both positively correlated with attitude toward mathematics. This is also true for pre-service teachers, as is reported in the study by Rech *et al.* (1993) who compared the mathematical competencies and attitudes of American pre-service elementary education students against a representative college population, over three years. The results supported Caraway's findings and also showed that the pre-service students possessed significantly more negative attitudes toward mathematics than the general college sample. Davies and Savell (2000), in a study of 53 New Zealand early pre-service childhood students found they entered their teacher preparation program feeling negative about mathematics Grootenboer (2002) reported similar findings for 31 New Zealand pre-service primary teachers and there are Australian studies with similar results (Sullivan, 1989). When exploring the attitudes of primary school teachers towards mathematics it is necessary not only to consider their attitudes towards mathematics but also their attitudes towards the teaching of mathematics. The significance of research involving the attitudes of primary teachers is important due to the potential influence of these people upon pupils. The experiences of teachers influence the formation of attitudes and these, in turn, influence their classroom practices. These attitudes and practices may sometimes be at variance with the main direction of their tertiary teaching methods courses. Thus it is crucial in understanding primary teachers that these attitudes are made explicit and examined in order to adapt tertiary courses to the needs of these students. Research has argued that positive teacher attitudes contribute to the formation of positive pupil attitudes (Sullivan, 1989; Relich *et al.*, 1994). Other studies have shown that classroom strategies used to teach a subject are influenced by teacher attitudes which, in turn, influence pupil attitudes (Carpenter and Lubinski, 1990). Research into attitudes to mathematics has explored the influence of a range of affective variables such as anxiety and self-image. Mathematics anxiety is usually defined as a feeling of tension and anxiety that interferes with mathematics performance. There is disagreement over whether it constitutes an independent affective construct or is really a reflection of some deeper attitude. Thus while Nisbet (1991) argued that anxiety and confidence in teaching mathematics were independent factors. Relich *et al.* (1994) disagreed in their study of 212 Australian undergraduate pre-service teachers. Quinn (1997) also reported that when teachers improved their attitudes toward math, the student achievement was impacted.

To achieve the objective of the study, three hypotheses were developed and tested to guide the study. These are:

- There will be no significant difference in the teacher's self-efficacy and pupil's academic performance.
- There will be no significant difference in the teachers training and pupil's academic achievement.
- There will be no significant difference in the teacher's attitude to teaching and pupil's academic achievement.

MATERIALS AND METHODS

This study adopts a descriptive survey method. This allows better description of events during the course of carrying out the study.

Population and sample: The population of the study comprised primary school pupils in Epe, Lagos State, Nigeria. Five primary schools were purposefully selected. Within each selected primary school, 50 pupils were purposefully selected. This gave a total of 250 pupils that took part in the study. This sample was mainly drawn from primary 6 classes. The bio-data information of the respondents reveals that 250 were male and 250 were female. The age of the respondents ranged from 11-14 years with a mean of 12.5 years. Ten teachers were also selected from each of the selected primary school. These gave a total of 50 teachers that took part in the study.

Instruments for data collection: A modified questionnaire tagged Teacher Profiles Scale (TPS) was used for the collection of data. The instrument was divided into:

The teachers self-efficacy subscale: This part contains items that measured teacher's self-efficacy in the teaching of primary school pupils. It contains ten items of likert type format rating with responses ranges from not at all true, barely true, moderately true and exactly true. Items in this part were adapted from Swarzer *et al.* (1999). Teacher Self-efficacy Scale and Mathematics Teaching Efficacy Belief Instrument (MTEBI) by Riggs and Knochs (1990) The reliability coefficient of this sub-scale yielded an $r = 0.73$.

Teachers attitude sub-scale: This part contains items that measured teacher's attitudes towards the teaching of mathematics. It comprises of 10 items of likert type scale with response range from strongly agrees to strongly disagree. Items in this part were adapted from Southwell and White (2005) teacher's mathematics attitude survey. The reliability coefficient of this sub-scale was found to be $r = 0.78$ Cronbach alpha.

Teacher training was measured using the response of the selected teachers to the bio-data information part on their teaching qualification and type of training received.

Pupil's academic achievement score: An achievement test was constructed to measure the academic achievement of the pupils. This consists of 30 items that covers 3 prominent subjects in primary school. These are English, Mathematics and Science. Ten items was constructed on each of the subject. This was scored over 100 to get the percentage of each pupil. These score were correlated with data obtained from 2 other teacher profile questionnaire and the bio-data information.

Procedure: All the selected teachers were administered the teacher profile questionnaire while all the selected pupils were administered the achievement test. The administration of the instrument took place in each of the selected school based on the approval by the authority of the schools.

Data analysis: Data collected were analysed using Pearson multiple correlation and multiple regression.

RESULTS AND DISCUSSION

The results of the data collected and analysed on the study are presented as follows.

Hypothesis 1: There will be no significant difference in the teacher's self-efficacy and pupil's academic performance.

In Table 1 the result reveals that relationship exists between teacher's self-efficacy and pupil's achievement with (r.obs = .541< p.05; df = 498). This indicates that teacher's self-efficacy has an influence or is a determinant of pupil's achievement. It could also presuppose that this variable or profile is capable of predicting pupil's achievement.

Hypothesis 2: There will be no significant difference in the teachers training and pupil's academic achievement.

In Table 2 the result reveals that relationship exists between teacher's training and pupil's achievement with (r.obs =0.488< p.05; df = 498). This indicates that teacher's training has an influence or is a determinant of pupil's achievement. It could also presuppose that this variable or profile is capable of predicting pupil's achievement.

Hypothesis 3: There will be no significant difference in the teacher's attitude to teaching and pupil's academic achievement.

In Table 3 the result reveals that relationship exists between teacher's attitude and pupil's achievement with (r.obs = .476 < p.05; df = 498). This indicates that teacher's training has an influence or is a determinant of pupil's achievement. It could also presuppose that this variable or profile is capable of predicting pupil's achievement.

This study examined teacher's profiles and pupil's academic achievement. The results have reveal that pupil's academic achievement has relationship with the 3 teachers profiles focused on the study which are teacher's self-efficacy, teacher's training and teacher's attitude to teaching.

The results of the first hypothesis on the study which reveals that teachers self-efficacy positively correlate with pupil's achievement is in agreement with some previous findings. For instance, Tella *et al.* (2007) in his study of teacher's variables as predictors of pupil's academic achievement in mathematics reported that teacher's self-efficacy is one of the teacher's variables that correlate with and predict pupil's achievement. Similarly, literature have earlier indicate that teachers who have high self-efficacy tend to: Persist in failure situations (Gibson and Dembo, 1984), take more risks with the curriculum, use new teaching approaches (Gibson and Dembo, 1984), make better gains in children's achievement (Brookover *et al*., 1979) and have more motivated students (Midgely *et al*., 1989). The issue of teacher's making better gains in children achievement as said by Midgely *et al*. (1989) is very relevant here.

The result of the second hypothesis which reveals that teachers training correlate with pupil's achievement correspond with the findings by (Monk, 1994) who reported that students whose teachers had taken a greater number of mathematics and science courses scored higher on the math and science assessments. Goldhaber and Brewer (1999), Quinn (1997) and Zuelke (2001) found similar relationships in their analysis. This means that the type of training teaches receive is very important and matters a lot when considering the issue of pupil's achievement particularly at the primary school level. Thought the report of this author was based on pupil's achievement in mathematics but the present study was focuses on pupil's achievement generally not in a particular subject.

The 3rd finding on this study shows that teachers attitude correlate with pupil's achievement. This as well confirms the previous reports of some studies. Quinn (1997) reported that when teachers improved their attitudes toward math, the student achievement was impacted. Similarly, research has argued that positive teacher attitudes contribute to the formation of positive pupil attitudes (Sullivan, 1989; Relich *et al*., 1994). Other studies as well have shown that classroom strategies used to teach a subject are influenced by teacher attitudes which, in turn, influence pupil attitudes (Carpenter and Lubinski, 1990). It has been suggested that when exploring the attitudes of primary school teachers towards teaching it is necessary not only to consider their attitudes towards a particular subject but also their

Table 1: Teacher's self-efficacy and pupil's achievement

Variables	No	Mean	SD	Df	r.obs	P	Remark
Teacher's							
Self-efficacy	250	250	16.8	498	0.541	0.05	S**
Pupil's achievement	250	250	15.9				

**Significant r < p .05

Table 2: Teacher's training and pupil's achievement

Variables	No	Mean	SD	Df	r.obs	P	Remark
Teacher's training	250	18.23	17.2	498	0.488	0.05	S**
Pupil's achievement	250	16.99	18.4				

**Significant r < p.05

Table 3: Teacher's attitude and pupil's achievement

Variables	No	Mean	SD	Df	r.obs	P	Remark
Teacher's attitude to teaching	250	18.21	14.8	498	0.476	0.05	S**
Pupil's achievement	250	19.54	13.23				

**Significant r < p .05

attitudes towards the teaching of all subjects. The significance of research involving the attitudes of primary teachers is important due to the potential influence of these people upon pupils. The experiences of teachers influence the formation of attitudes and these, in turn, influence their classroom practices. These attitudes and practices may sometimes be at variance with the main direction of their tertiary teaching methods courses. Thus it is crucial in understanding primary teachers that these attitudes are made explicit and examined in order to adapt tertiary courses to the needs of these students (Ackerman *et al*., 2006).

CONCLUSION AND RECOMMENDATIONS

Generally, the results have shown how important the three teachers profiles focused on this study are. Based on these results therefore, it is recommended that there is need for Nigeria primary school teachers who have low self-efficacy to probable consider going for self-efficacy training. If this is done, it is belief that it will improve their teaching and will eventually affect pupil's achievement. Moreover, the issue of teacher training should be given proper attention. Those teachers who do not receive proper training should be mandated to do so perhaps in the next 2 years. Not this alone, teachers who do no attend a teacher training college, or who do not hold a teacher certificate should be considered for teaching at any level. It should be noted that many teacher's attitude towards teaching the primary school pupils is bad. This is affecting pupil's achievement. In the light of this, teachers in this category are call upon to have a change of attitude toward teaching the pupil's or else they are advise to seek for upgrading to teach at the secondary school.

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