

# Exploratory And Confirmatory Factor Analysis Of School Repellent Variables For Out-Of School Children In Ogun State

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## Abstract

*One of the objectives of Universal Basic Education (UBE) is to have a compulsory and free education at the basic education level. UBE was launched nine years ago, yet not all children who are at the basic education age are in school, some actually started school but do not complete school, therefore, the study examined some of the factors that militate against the drive to have children stay in school. Developing and validating school repellent variables for out-of school children in the three senatorial districts of Ogun State, Nigeria do this. Four research questions were raised to guide the study. School repellent factor scale was used for the study; this was administered to 500 children on the streets, at motor parks and those hawking on highways during school hours. The research questions were answered using the factor analysis method. The data were purified using rotated component matrix, exploratory and confirmatory methodology. Nine factors solution were found which reflected parameters for peer social interaction among the children. The chi square result (Goodness of fit test) was not significant; hence the new model is tenable. The implication of the study is discussed*

## Introduction

The childhood period is considered an important one that requires a great deal of attention, care, stimulation and encouragement (Vasta, Haith and Miller, 1995). This assertion is based on the empirical evidence that the childhood period is characterized by rapid development with long term influence on later life (Akinbote and Ogunranti, 2004). Plato is reported to be the first person to suggest that, the education of children should start as early as possible. This according him, is necessary because, it is during the early childhood period that any impression which one may desire to communicate is most easily stamped and taken (Akinbote, Oduolowu and Lawal, 2001). In other words, the type of environment to which he is exposed could affect the chances of a child fulfilling his potentials. The environment here refers to both the social and physical environments of the home or the school. The teacher is a major factor in the success of all the activities that go on in the classroom. He therefore plays an important role in the stimulation, encouragement and development of creativity in children (Akinbote, et al, 2001).

A land mark in the global push for basic education came in March 1990, with famous Jomtein World Conference on Education for All (EFA). The conference emphasized that Basic Education is not determined by years of schooling, but the extent to which an

educational program is able to lay the foundation for life long learning (Obanya, 2002). That is, the framework of action stressed that basic education, which should be made available to all children, should emphasize among other thing: Quality and efficiency (Odinko and Osokoya, 2004).

An estimate of some 15 million young persons (aged between 6 and 15) are out-of-school and out of many meaningful social activities in Nigeria (Obanya, 2002). These heterogeneous groups are made up of: street children; children and adolescents who have never been to school; members of gangs such as 'area boys' and those involved in a wide variety and forms of child labours. Also, it was reported in a national dailies that more than 60 percent of pupil who enrol in primary schools in Nigeria usually fail to reach the last grade. Generally, the child is somehow a 'coerced learner' in a classroom setting, such that going to school is more of fulfilling parental biddings and desires, than doing what the pupil would have loved to do willingly. Left to the child, he or she derives more pleasure playing hide and seek games at homes with his or her peers, than attending school which is full of teacher's and schools' restrictions. The child in Nigeria for instance is sometimes given corporal punishment for his or her inability to give positive response to teacher's assessments in a teaching-learning session. Thus, attending school, to that child is one of his daily routines or responsibilities to his parents. In other words, children attend school to satisfy their parents. The child is therefore in a fix – a dilemma of his naivety and unfriendly nature of the school environment.

Israel (2004) reported that programmes such as school bands, sport teams or after school clubs provide children with the opportunities to develop relationships with adults who reinforce the idea that school is important to them. It was clear from his analysis that, students who spent more time alone at home had a greater tendency to drop out of school. Other family-based factors identified to influence students include: number of parents in the household; the number of siblings and whether any brothers or sisters had dropped out of school previously (Israel, 2004). However, Chung-Ju (2001) was of the opinion that children from different socio-economic status exhibit different background patterns in schools, and also the attitudes of the parents towards the school system also influenced school repellent behaviour and is rooted in the family background. Consequently, to make such a reluctant and often out-of-school children to learn and continue learning in the school requires an effective and child friendly approach. This is why a study of this nature sought to determine or develop and validate some school repellent factors for the out-of-school children in Ogun State, Nigeria.

### **State of Nigerian Public Schools**

It is no longer news that the state of our public schools is a sham and shame to the Nation. At least, one out of every two classrooms in Nigeria primary and secondary schools are in very bad shape. This is part of the findings of a recent Federal Ministry of Education study tagged ORASS (Operation reach all Secondary Schools). The report put the percentage of primary schools with rooms in good condition at 50.95 and percentage of secondary schools with rooms in good condition at 50.25 percent and concluded "approximately one out of every two classrooms is in very bad condition". Also from the recent census report, there are 140 million Nigerians; 45 percent of this (63 million) are children who fall within the age bracket of 0 – 15 years. Out of these 63million children, only 42million were eligible for primary school education. Of this figure, only

22.3million were in primary schools with the public schools system catering for 85 percent of this total.

In view of this, the report stated that about 47 percent (19.8 million) Nigerian children that should be in primary schools were out of school. Advancing reasons why the Nigerian educational sector was in a sorry state the then Education Minister said it was due to following reasons:

- Absence of a cohesive, consistence and strategic advocacy campaign to increase enrolment,
- Lack of effective funding structure,
- Lack of sufficient community participation in public education,
- Lack of accountability and transparency in government expenditure at all levels of education,
- Lack of adequate numbers and right quality of teachers and
- Inadequate funding of education effectively and efficiently

The Education Minister also sees the need for specialized teachers for early childhood care and education; more textbooks; instructional materials; teaching and learning aids at all levels; incentives for our high performing students, teachers and school managers among many others, as some of the approaches that can stimulate the educational sector. In view of this, the study sought to develop and validate school repellent factors scale using exploratory and confirmatory factor analysis.

### **Research Questions**

In order to provide answer to the identified problem, the following research questions were asked:

1. What are the characteristics of school repellent factors for out-of-school children?
2. What factors are indicative of school repellent factors for out-of-school children?
3. What is the concurrent and construct validity of the school repellent factors for out-of-school children?
4. How tenable is the new factor model?

### **Methodology**

The study adopted a descriptive survey type. The descriptive survey was considered appropriate for this study because the nature of the variables studied precluded any form of manipulation by the researcher.

Table 1: Zoning of the Local Government Area (LGA)

Senatorial Zone	Number of LGA	LGA Selected
Ogun-East	9	2
Ogun-Central	6	1
Ogun-West	5	1
Total LGA	20	4

Adapted from Ogun State Political Zoning

A multi-stage random sampling technique was adopted to select 500 children – 323 (64.6%) male and 177 (35.4%) female. The study covered children that were out-of-school during school hours from 4 local government areas in the three senatorial zones (see Table

1) in Ogun State. The sample represents different age groups (age ranges from nine years to eighteen).

School Repellent Factor Scale (SRFS) was designed for the study. The instrument consists of 45 items designed specifically to elicit information from the target samples, who were children found on the streets, at motor parks and garages, hawking and engaged in all forms of child abuses. The instrument was pilot-tested using a representative sample of 20 children from two local government areas in the state (these are not included in the main study). Based on the problems encountered by the respondents, the instrument was modified to the level of the respondents before being administered to the sample in a non-threatening environment. The internal consistency and construct validity of the scale is 0.85. This value is judged high enough to warrant the use of the scale for exploratory and confirmatory factor analytical procedure.

The scale was personally administered in the selected local government areas of Ogun State to the samples by the researchers. There were instructions on how to complete the questionnaires by the respondents. Since the scale made use of a 5-point rating scale which was scored 1,2,3,4 and 5, therefore, the coding used was 1,2,3,4 and 5 for positive statement and reverse for negative statements. The data analysis procedures adopted were descriptive statistics, measure of internal consistency and construct validity (Cronbach alpha) and exploratory and confirmatory factor analyses.

## **Results and Discussions**

### **Research Question 1:**

What are the characteristics of school repellent factors for out-of-school children?

### **Development of school repellent factors Scale.**

Twenty children in two local government areas were asked to write down what make them leave school (repellent factors) and eight one items were generated from the children. These items are referred to as “crude” instrument. The “crude” instrument generated was given to experts in the field of educational evaluation to give it both face and content validity. Many items were deleted probably because they are repetition of some other items, some items were restructured and some were added to give a total of 45 items. The instrument was then administered on five hundred out-of-school children. Both descriptive and reliability survey analyses were performed on the items. Items with item total correlation less than 0.3 (Shiarella, et al 2000) were dropped in order to increase the homogeneity of the items. This is consistent with the procedure recommended by Nunally and Bernstein (1994).

**Table 2: Characteristics of the Crude School Repellent Factor Scale**

S/N	Item	Mean	Std Deviation	Scale Correlation	Alpha
1	My teacher is too wicked	146.2301	21.459	0.2617	0.8497
2	My teacher does not teach well	146.1836	21.5168	0.2594	0.8496
3	I enjoy playing with my friends on the street	146.2588	21.2873	0.3949	0.8468
4	There is no adequate seating arrangement in my school	146.9668	21.5065	0.2287	0.8504

5	My teacher uses abusive language in the class	146.3761	21.4207	0.3253	0.8484
6	My teacher always shows his hatred at me because I'm not brilliant	146.0996	21.4556	0.2946	0.849
7	My teacher uses big vocabularies in the class	146.5044	21.5095	0.2522	0.8498
8	I am a slow learner, hence I don't like schooling	146.0863	21.3107	0.3958	0.8469
9	My classmates stay away from me because of my disability	145.7235	21.4138	0.3199	0.8484
10	My parents could neither pay my school fees nor take good care of me	146.0642	21.5932	0.1647	0.8518
11	I make money outside schooling	146.1991	21.2236	0.398	0.8466
12	There is no football pitch in my school for me to play on.	146.292	21.333	0.3677	0.8474
13	My school does not have a food vendor	146.0796	21.3267	0.3894	0.847
14	My teacher always engages us in his domestic works	146.2146	21.3346	0.3559	0.8476
15	My school environment is too dirty	146.1504	21.2532	0.4063	0.8465
16	There are no recreation facilities in my school	146.708	21.3976	0.3054	0.8488
17	My teachers are not regular in their lessons in the school	146.5111	21.3787	0.361	0.8476
18	The classrooms are too crowded and noisy for any meaningful lesson to take place.	146.7898	21.4618	0.2657	0.8496
19	Teacher do not entertain my opinions	146.4978	21.427	0.3131	0.8486
20	There is no library in the school to keep us engaged	146.5597	21.3355	0.3758	0.8473
21	My school does not have a fence for the security of our lives	146.5	21.38	0.2692	0.8498
22	My teacher does not give enough time for us to rest after each lesson.	146.8075	21.4808	0.263	0.8496
23	Our teachers beats us even where he only needs to give verbal warning	146.823	21.5564	0.2203	0.8504
24	The authorities do not care about our well-being and social	146.6372	21.3834	0.3218	0.8484

	life				
25	My teachers always drink alcohol during school hours.	146.3053	21.3586	0.3	0.8479
26	My teacher's lesson is always boring	146.6969	21.3956	0.2838	0.8479
27	Structures in my school are in bad shapes and could collapse anytime	146.8872	21.5061	0.2197	0.8507
28	My school does not have a toilet	146.3496	21.4278	0.272	0.8495
29	My school is too far from my home	146.677	21.5447	0.1953	0.8512
30	The teacher talks more of politics than the actual lesson	146.1881	21.407	0.3186	0.8485
31	I don't have the school uniform	146.0487	21.3532	0.3643	0.8475
32	My teacher always asks for illegal fees from us				
33	My teacher always makes use of us to sell sweets to our colleagues	146.1571	21.4065	0.3651	0.8475
34	My teachers have a care-free attitude towards teaching	146.4889	21.3599	0.2235	0.8504
35	I want to take over my father's business	146.1018	21.5376	0.3108	0.8486
36	There is no bus plying my school route due to the poor road network	146.7588	21.3978	0.2649	0.8496
37	The teacher always favour the children of his tribe alone.	145.9447	21.4476	0.3012	0.8488
38	I enjoy playing snookers	146.1128	21.3673	0.3292	0.8482
39	I am able to browse the internet and chat with my friends	146.6571	21.4807	0.2505	0.8499
40	I don't have the required textbooks	146.2456	21.2831	0.4187	0.8464
41	The food vendors sell at exorbitant prices in the school	146.6726	21.4636	0.2503	0.85
42	I'm able to watch home video films at a convenient time	146.4668	21.45216	0.2829	0.8492
43	I don't have confidence in my ability	146.1106	21.3359	0.3871	0.8471
44	I'm ashamed of myself because I'm a repeater	145.9248	21.3058	0.3949	0.8469
45	I enjoy playing with my friends	146.6681	21.3572	0.3238	0.8483

What factors are indicative of school repellent factors for out-of-school children?

[illegible]

32	My teacher always asks for illegal fees from us								0.534	
36	There is no bus plying my school's route due to poor road network.									0.484
34	My teachers have a carefree attitude towards teaching.									0.451
22	My teacher does not give enough time for us to rest after each lesson									0.424

The question was answered using factor analysis on the 45 items. After the first loading, 13 factors scales obtained were reduced to 9 factors by the extraction method (Principal Component Analysis). The factors accounted for 60% of variation while the rest was due to chance.

**Table 3: Rotated Component Matrix**

Table 3 showed the rotated component matrix with minimal double-loading complication for items. Nine factor scales were identified after the load with each factor having a minimum of two items and maximum of five items. The nine factors are explained below. Factor 1 reflects children scholastic attitude as an essential parameter for acceptance to stay out of school and it includes 5 items (for instance “I don’t have confidence in my ability”; “I’m ashamed of myself because I’m a repeater”; I’m a slow learner, hence, I don’t like schooling, etc). Factor 2 shows that school structures and it has three items (i.e. “The classroom is too crowded and noisy for any meaningful lesson to take place”, structures in my school are in bad shape and could collapse anytime” and “the school authorities do not care about our well being and social life”). Factor 3 reflects recreation facilities status and it includes two items (i.e. “there is no football pitch in my school for me to play on and my school does not have a food vendor”). Factor 4 reveals children social status and this include three items (i.e. “I want to take over my father’s business”, “I enjoy playing snookers” and “I make money outside schooling”). Factor 5 reflects teacher’s communication and use of cane and it includes three (3) items (i.e. “My teacher’s lesson is always boring”, “our teacher beats us even where he only needs to give us verbal warning” and “my teacher uses abusive language in class”). Factor 6 shows children ability and it contains three items namely: I enjoy playing with my friends; my school is too far from home and there is no recreation facilities in my school. Factor 7 reflects teacher’s disposition to children and it includes two items (i.e. my teacher is too wicked and my teacher does not teach well). Factor 8 reflects teacher’s negative influence and it includes three items (i.e. teacher talks more of politics than the actual lesson; Teacher always favours the children of his tribe alone, and my teacher always ask for illegal fees from us). Factor 9 reflects another teacher’s attitude to work and it includes three items (e.g. “teacher have care-free attitude towards teaching”; and “my teacher does not give enough time for us to rest after each lesson”).

### **Research Question 3**

What is the concurrent and construct validity of the school repellent factors for out-of-school children?



**Table 4: Correlation and Reliability**

Factor	1	2	3	4	5	6	7	8	9
1	0.655								
2	0.17	0.476							
3	0.283	0.088	0.548						
4	0.413	0.107	0.303	0.536					
5	0.292	0.172	0.143	0.138	0.444				
6	0.156	0.213	0.209	0.112	0.144	0.44			
7	0.175	0.086	0.507	0.077	0.231	0.158	0.518		
8	0.224	0.079	0.309	0.242	0.213	0.185	0.17	0.443	
9	0.265	0.306	0.182	0.218	0.281	0.186	0.138	0.228	0.4

The final sets of the items derived from factor analysis were tested for their reliability. The items were analyzed for each scale separately.

**Table 5. The internal consistencies of each Factor**

0.655	Factor 1 reflects children scholastic attitude
0.476	Factor 2 school structures
0.548	Factor 3 recreation facilities status
0.536	Factor 4 children social status
0.444	Factor 5 teacher's communication and use of cane
0.410	Factor 6 children ability
0.518	Factor 7 teacher's characteristics
0.443	Factor 8 teacher's disposition to children
0.400	Factor 9 teacher's attitude to work

The Pearson product moment correlation was used on the 9 factor and none correlate up to 1.00 at 2-tailed significant levels. For instance factor 1 correlates with other factors with correlation coefficients of 0.700, 0.283, 0.413, 0.292, 0.516, 0.175, 0.224 and 0.265 respectively.

#### Research Question 4

How tenable is the new model?

**Table 5: Goodness of fit test**

Chi-square	df	Sig
322.469	289	0.085

To verify the factor structure of the children's' evaluation of their peer social interactive behaviour, first obtained from the exploratory factor analysis, a confirmatory factor analysis was conducted. Maximum likelihood solution was used to verify the relationship between the observable and latent constructs. The chi-square ( $\chi^2$ ) statistics was not significant for this model, indicating an adequate fit of the confirmatory model to the data:  $\chi^2$  (df = 289, N=500) = 322.469.  $P < 0.05 = 0.085$ .

Hang and Michael (2000) pointed out that a statistically significant value of chi-square ( $\chi^2$ ) index indicates that the entries for the proposed model deviate from these

obtained. Thus, the hypothesized model should be considered untenable, if otherwise then, it is tenable.

## **Discussion**

The study revealed that there is an existence of correlation between each of the factors that constituted children's social interaction scale. Lin (1993) had earlier developed a 7 – factor scale to evaluate students' perception of their peers' interpersonal behaviour in class. Some of the items have been identified to be more potent and could have much effects on this study. The children were able to express the attitudes of their teachers both to their lessons and social needs. Owen (1983) reported that to keep children staying in a convectional classroom, they must be made to learn in presence of others and that individual children is never alone but always in relation to the world of other people. However, because human learning is social learning (Mead, 1976) many teachers have found it useful to group students for instructions, educationist like Muth (1982) reported that group work in school helps students to be truthful, loyal, unpretentious, honest and selfless. Teachers have been called upon to tailor instructions to suit the need of each child (Peterson, 1976).

The children interaction in out-of-school situation may improve individual children's self-image. Hallinan (1981) listed physical attractiveness, sociometric status and gender as some of the determinants of acceptance of student by his peers. This was also supported by Tuma and Hallinan (1979) that gender is one of the individual characteristics, which have a strong influence in student's social interaction. It is evident that the children attitude is greatly influenced by their mode of relationship with peers (Johnson and Johnson, 1983). The in itself will have a strong binding effect on the friendship. However should they have dissimilar attitudes, the children will not want to share any activity in common. Indeed, similar attitudes induced 'comfortable' high, happy, pleasant and positive feeling. While dissimilar attitudes generate uncomfortable, low, sad, unpleasant and negative feelings. It was in line with this dissimilar attitudes that lead to some children being isolated. Gottman (1975) indicated that isolated children were suffering the consequences of inadequate learning of social skills in their upbringing. Consequently, teachers have a greater and pivotal role to play, being a major and potent factor among the other variables identified to militate against children to stay in school.

## **Conclusion**

This study was able to establish, to an extent, the presence and incidence of children staying out-of-school. The correlation matrix of the nine factors shows that none of the nine factors correlate up to 1.00 at the 2-tailed significant level and none of the correlation coefficients in the matrix is stronger than the values in the diagonal (the internal consistency of each of the factors). This implies that each of the factors stands out and we cannot say that any two factors are measuring the same thing. This scale can now be used by teachers in the Nigeria context to evaluate the extent of school effectiveness in each of the dimension considered.

## **Recommendations**

Based on the findings of this study, the following recommendations are hereby made, that:

1. School management should endeavour to make the children comfortable both in classrooms and in the compound. Counselling unit should make use of qualified counsellor to talk to the children on various challenges facing them, both academics and social.

2. The Federal Government should establish an agency that will be charged to see to the affairs of the out-of-school children.
3. The use of educational inspectorate should re-surface in the Ministry of Education and thorough re-orientation be done for the officers and teachers to gear them up for the big task of education.
4. Government can as well establish an Act, prohibiting child abuse and that children cannot work for money until age of 20. This will reduce the incidence of out-of-school children.

## REFERENCES

- Akinbote, O and Ogunranti, C.M. (2004). Nigerian Teacher's Perception of Creativity Among Pre-School Children. *West African Journal of Education*. 25(1) 107-114.
- Akinbote, O., Oduolowu, E and Lawal, B. (2001). *Pre-primary and Primary Education in Nigeria: A Basic Test*, Ibadan. Stirling Holden Ltd.
- Chiung Ju, W. (2001). The study of family factors in Anti-school behaviour of Junior high school students. *Educational research and Information*. Vol. 9 (5)149-174.
- Gottman, J.M. (1975) Teaching social skills to isolate children. *Journal of Abnormal and social psychology* 4:178-97.
- Halliman, M.T (1981) Recent Advance in sociometry In; S. R. Asjer and J.M. Gottman (Eds.) *The development of children's friendships*. Cambridge University press.
- Israel, G. (2001) Children who participated in adult-supervised extra-curricula activities after school. *Florida News*
- Johnson, D.W. and Johnson, R.T. (1983). Effect of Cooperative, competitive and individualistic learning experiences on cross handicap relationships and social development. *Exceptional children*. 49(4) 323-330.
- Owen, L. (1983). With Others, Against Others and on your own: The learning preferences of teacher. *Journal of Education for teacher* (2) 131-149.
- Peterson, A.S. (1976). *Individually Prescribed Instruction* N.Y. JOHN Willey & Son.
- Tuma, N. and Halliman, M. (1979). The effect of sex, race and achievement in school. *Children's friendship's social forces*. 57:1265-85.
- Vasta, R; Haith, M.M. and Miller, S.A. (1995). *Child Psychology* (2nd Edition). New York: John Willey and Sons Inc.