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Thinking Disposition Factors and Academic Achievement of School Prefects' in Civic Education Concepts

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Abstract

The exigencies of educational institutions in the information age require that thinking dispositions of students with administrative responsibilities be given utmost attention. This enquiry probed the influence of thinking dispositions of school prefects' academic attainment in civic education in rural and urban learning ecologies. The study adopted a survey research design of a quantitative type. The respondents were 167 (male=88, female=79, X=15.85, SD=1.73) prefects in eight selected secondary schools in northern and southern Nigeria. Eity seven respondents attended urban schools, while 80 were in rural schools (M=1.48, SD=0.50). The instruments utilized for collecting data were 'Prefects Thinking Dispositions Questionnaire' (PTDQ) and 'Citizenship Education Achievement Test' (CEAT). Descriptive statistics, Pearson's product moment correlation, and multiple regression of hierarchical type were employed to analyze the data. Results show that school location, absolutism, superstitious thinking, and openness as values were the most potent predictors of school prefects' academic achievement in civic education. The study recommends that teachers in rural and urban learning ecologies teach thinking disposition constructs to school prefects to improve their academic achievement, and empower them with rational ability to run the school outside the classroom.

Keywords: Flexible thinking, absolutism, superstitious thinking, openness value, academic achievement, school prefects, civic education.

Introduction

The realities of the 21st century academic institutions for educating children show that there are school and non-school variables that are confounding teachers' efforts in improving school children learning outcomes, especially those with responsibilities otherwise called 'Prefects'. Lam, Chen, Zhang, and Liang (2015) observe that the expanding volume of literature on academic achievement of students has unveiled the influence of social and environmental factors like family, school, and peer on academic achievement in educational institutions. Agaba (2015, August 5) states that school administrators seasonally appoints students with good moral credentials into leadership positions, which receive impressive responses from the students due to passion for service and privileges attached to these leadership positions. Regrettably, the euphoria of the appointments into school leadership positions is usually momentary when the academic performance of the appointed students drops. Despite previous research on school prefects (Kirera, 2015; Kabugi & Tanui, 2014; Nambuya, 2013), there is little studies on the influence of thinking dispositions on school prefects' academic achievement. This study aims to evaluate the moderating influence of school location and thinking dispositions on school prefects' academic performance.

School Location and Academic Achievement

Research has shown that there is a connection between the geographical location of an educational institution and learning outcomes of students including those with special leadership responsibility (Owoeye & Yara, 2011; Nambuya, 2013). Owoeye and Yara (2011) in their discourse on geographical locational impact on academic achievement of students in urban, and rural schools in the West African Senior School Certificate Examinations note that students in the city centres performed better than their colleagues in the rural schools. These researchers attribute the superior performance of the urban learners to their urban geographic location which enriches their academic knowledge and concluded that the locale has tremendous impact on students' cognitive achievement. The discovery of these researchers is corroborated by Musa (2003) who discovered that geographical locus moderated the impact of gender on students' learning goal, mathematics, and general academic achievement.

Much has been written about school location and students' learning outcomes. Jacobs (2011), for instance, points out that:

> *One of the most integral decisions a parent or guardian makes for a child or ward is selecting where he or she will attend a school. Several parents or guardians in most cases select that educational institution by default or abiding by the selection made for them by the local school board (p.459).*

The situation painted by this researcher is not any different in Nigeria where parents most times select schools for their children or wards based on personal sentiments. A recent study (Kosunen, Bernelius, Seppanen, & Porkka, 2016) concludes that the issue about students' school location can be viewed from two systems of families' selection namely, schools from their options in cities, and selection of students by schools according to set criteria. The systems highlighted by these researchers are used in Nigeria, with the admission by the State Ministry of Education the popular option though with minor infractions or proliferations. One of the integral criteria set by most state education boards in Nigeria is performance of students in entrance examinations. This results in most academically sound students attending common schools in the urban centres, while students who are poor academically are pushed into rural schools. It should be noted that this admission bias at different school levels in the geographical locations studied demanded the use of school prefects as respondents in this study.

Thinking Dispositions and Academic Achievement of School Prefects

The actualities of the 21st century educational institutions require students that can think critically. In the current information society, thinkers are leaders, (Greene & Yu, 2016; OECD, 2013; The World Bank, 2011) because students must reconcile opinions from a progressively multiplex, intercontinental, and interconnected globe. Ideal teachers in the

information age crave that their protégés become functional people who perform beyond the execution of instruction in their classrooms (Nelsen, 2015; Russell, 2002). In a recent article, it is affirmed (Bloch and Spataro, 2014) that dispositions in contrast to talents or potentials connote extensive unconscious assimilation of critical thinking routines which mould a student's inclination to approximate rational judgement. These scholars maintain that a disposition to think is more powerful and applicable to trans-disciplinary domains and loci. Teachers must be aware that thinking disposition constructs are ubiquitous indicators of the critical thinking dynamics. A recent study that investigates the reflexivity, and the capacity to think (Doyle, 2012) defines thinking as the vehicle of accomplishing reflexivity, with the precondition as the 'capacity to think'. This scholar concludes that being able to think, and to learn has its roots. We earnestly affirm the sentiments of Doyle (2012) that the roots of thinking critically are embedded in the dispositional factors that aid thinking. Without these 'intuitive ingredients', it might be impossible to achieve (Abrami, Bernard, Borokhovski, Waddington, Wade, & Persson, 2015) a persistent, self-moderated judgement which culminates in interpretation, analysis, evaluation, and inference, and explanations of the considerations on which a judgement is hinged.

The purpose of this research is two-fold. First, it tested which of the demographic and thinking disposition variables will excellently predict the academic achievement of school prefects; second it evaluated the moderating relationship of the good predictors with academic achievement of school prefects. We did these by subjecting the data to multiple linear regression and gave the independent variables equal chances of being processed by the multiple linear regression model.

Why School Prefects?

An interesting view is expressed by Njue (2014) that the term 'prefect' 'describes a student with leadership qualities selected by the school authority or by students and given certain powers to control and guide other students' (p.94). Evidence from literature shows that the evolution of prefectship system of administration dated to the British 19th century schools, where prefects were managed as prized resources that could sustain the disciplinary ambience of a school (Lau, 2004). Muli (2011) states that prefects are usually selected from students in the senior grades, and they have considerable power to complement the efforts of the teaching staff to effectively run the school outside the classroom. We firmly believe only a student disposed to thinking could have the thought-flow of rationally doing these extra-curricular administrative tasks. In this study, the selected school prefects were appointed by the management of the selected schools, and in the graduating classes of the schools selected for this study. One of the integral requirements of appointing a student as 'prefect' in the selected schools is maturity of the student's behavioural dispositions, as well as excellence in their studies without considering the chronological age of the students. It, therefore, means the youngest student in most senior cadre of these schools can be appointed a prefect, if he or she has the requisite thinking qualities. While researchers have worked on leadership training for prefects (Lau, 2004); governance and school discipline by prefects (Njue, 2014; Muli, 2011), little or no research exists on the thinking dispositions of school prefects in relation to their academic performance. It is due to this gap in the literature, that the current discourse examines the relationship between thinking disposition factors and academic achievement of prefects in selected secondary schools in Nigeria. The remaining part of this article progresses as follows: section two details the questions answered in this study, section three describes the methodology, while section four explains the results. Section five discusses the findings and infers the implications of the findings for teacher preparation.

Research Questions

In this research, three research hypotheses were tested. First, that age, gender, school, and thinking disposition factors will have positive correlation with academic achievement of school prefects ($H_0$1). It was further hypothesized that age, gender, school location and thinking disposition factors will be good predictors of school prefects' academic achievement ($H_0$2), and that these independent variables will moderate their relationship with academic achievement of school prefects ($H_0$3).

Methods

Design

This study sets out to discover the influence of age, gender, school location, and thinking disposition factors on school prefects' academic achievement in civic education. This research adopted the descriptive survey of quantitative type which utilized structured questionnaire for data collection. The study was conducted in Nigeria, and as such projects the importance attached to age, gender, and thinking dispositions of school prefects in any geographical location, be it urban or rural.

Sample

One hundred and sixty-seven prefects were selected in eight secondary schools in northern and southern, Nigeria. 87 of the selected school prefects were in urban schools, while 80 attended rural schools (M=1.48, SD=0.50). Of the 167 selected school prefects, 47.3% were female, while 52.7% were male (M=15.85, SD=1.73). Two research instruments were used to collect data in this study, namely the 'Prefects Thinking Dispositions Questionnaire (PTDQ)', and 'Citizenship Education Achievement Test (CEAT)'. These measures were adapted from Kokis, Macpherson, Toplak, West, and Stanovich (2000), and Ige (2016).

The PTDQ is a questionnaire that comprises fifty-three statements with eight sub-scales. The selected school prefects responded to each statement on a six-point scale of 6 (strongly agree), 5 (moderately agree), 4 (slightly agree), 3 (slightly disagree), 2 (moderately agree), and 1 (strongly agree). In our quest to gain utmost insights into school prefects thinking disposition variables and achievement, and to improve the psychometric properties of the instruments, the components of the thinking disposition questionnaire were grouped into compartments (see Mizala, Martinez, & Martinez, 2015; Del Rio & Balladares, 2010). The 'Prefects Thinking Dispositions Questionnaire' has eight sub-scales and was subjected to Cronbach alpha for reliability coefficient. The reliability coefficients are as follow: flexible thinking sub-scale (α=0.64), openness values (α=0.62), Dogmatism (α=0.62), categorical thinking (α=0.67), beliefs identification (α=0.69), counterfactual thinking (α=0.70), absolutism (α=0.66, and superstitious thinking (α=0.75). The overall reliability of the 'PTDQ' employing Cronbach Alpha was 0.72.

The researcher developed the CEAT to evaluate the participants' achievement of selected civic themes. The test has 45 objective test units with options a-d that has only one right option. The test was based on 7 civic concepts such as values, negative deportments, communication, Information and communication technology, problems of communication technology, and civic issues and disorders. The objective test units were limited to knowledge, comprehension and application level of cognitions. Eleven questions were produced at knowledge state, twelve for comprehension level, and sixteen at the realm of application. For reliability and average item difficulty, the final draft of the test was subjected to KR-20 for reliability which produced 0.78.

Ethical Procedure

I initiated meetings with the management of the selected schools and gave adequate brief to their officials on the study. The researcher and the management teams subsequently sought informed consent from the prefects of the schools that participated in this study.

Data Analysis

The data was subjected to multiple linear regression analysis, and Pearson Product Moment Correlation using Statistical Package for Social Sciences (24.0). Achievement scores of the selected school prefects in civic education were transformed to z-scores and used for analysis. It should be noted that we checked the scatter plots to establish if there exist linear relationship between the dependent and independent variables in our model of multiple linear regression. The variables were not forced into the model due to our interests in variables that will give information about additional variance in the model.

Results

The results guided by the research hypotheses are presented as follows:

Table 1: Descriptive and Correlation Coefficients of the independent variables and academic achievement

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Academic Achievement	1											
2. Gender	-.081	1										
3. School Location	-.449**	.148	1									
4. Age	-.226**	-.203**	.223**	1								
5. Flexible Thinking	.196*	-.174*	-.180*	.042	1							
6. Openness Values	.225**	.000	-.083	-.031	.467**	1						
7. Dogmatism	.176*	.068	-.102	.041	.303**	.279**	1					
8. Categorical Thinking	.137	-.104	-.165*	-.106	.145	-.009	.301**	1				
9. Beliefs Identification	.137	.021	-.069	.080	.236**	.378**	.373**	.061	1			
10.Counterfactual Thinking	-.085	-.14	-.036	.082	.255**	.179*	.182*	.176*	.210**	1		
11. Absolutism	.293**	-.035	-.229**	-.014	.311**	.288**	.350**	.276**	.307**	.162*	1	
12. Superstitious Thinking	-.287**	.026	.288**	.212**	.135	.187*	.187*	-.075	.201**	.206**	.153*	1
Mean		1.47	1.48	15.85	42.48	43.14	42.50	16.06	24.78	7.72	24.50	24.28
Standard Deviation		0.50	0.50	1.73	8.06	7.86	6.81	3.56	5.96	3.32	4.93	8.37

* Correlation is significant at the 0.05 level (2-tailed).** Correlation is significant at the 0.01 level (2 tailed).

Table 1 gives the summary of the zero-order Pearson correlations between the predictor variables and academic achievement of the selected school prefects. Table 1 reveals significant correlations between academic achievement and each of flexible thinking ($r=.196$, $p<0.05$), and dogmatism ($r=.176$, $p<0.05$).

It should be noted that only thinking disposition factors have positive correlations with the academic achievement of selected school prefects.

Table 2: Predictors of School Prefects Academic Achievement

Model	Variables Entered	Variables Removed	Method
1	School Location	Age, Gender, Flexible thinking, Openness value, Dogmatism, Categorical thinking, Beliefs identification, Counterfactual thinking, Absolutism, Superstitious thinking.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Absolutism	Age, Gender, Flexible thinking, Openness value, Dogmatism, Categorical thinking, Beliefs identification, Counterfactual thinking, Superstitious thinking.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	Superstitious Thinking	Age, Gender, Flexible thinking, Openness value, Dogmatism, Categorical thinking, Beliefs identification, Counterfactual thinking.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	Openness Values	Age, Gender, Flexible thinking, Dogmatism, Categorical thinking, Beliefs identification, Counterfactual thinking.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Academic Achievement

Table 2 conveys that school location, absolutism, superstitious thinking, and openness values are the most potent predictors of school prefects' academic achievement.

Table 3: Relative Contribution of Potent Predictors of School Prefects' Academic Achievement

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.326	.217		6.120	.000		
	School_Location	-.897	.139	-.449	-6.460	.000	1.000	1.000
2	(Constant)	.192	.448		.428	.669		
	School_Location	-.805	.140	-.403	-5.769	.000	.948	1.055
	Absolutism	.041	.014	.201	2.876	.005	.948	1.055
3	(Constant)	.366	.438		.835	.405		
	School_Location	-.647	.144	-.324	-4.494	.000	.841	1.189
	Absolutism	.052	.014	.255	3.646	.000	.896	1.117
	Superstitious_Thinking	-.028	.008	-.233	-3.275	.001	.867	1.154
4	(Constant)	-.392	.510		-.769	.443		
	School_Location	-.618	.141	-.310	-4.368	.000	.836	1.196
	Absolutism	.042	.014	.209	2.957	.004	.845	1.183
	Superstitious_Thinking	-.032	.008	-.265	-3.753	.000	.843	1.187
	Openness_Value	.024	.009	.189	2.757	.007	.892	1.122
a. Dependent Variable: Academic_Achievement								

Taking school location as the moderating variable, academic achievement of school prefects as endogenous variable, and absolutism, superstitious thinking, and openness value as exogenous variables (See Table 3). Absolutism is shown to be the most reliable predictor of school prefects academic achievement (B= .209, t=2.957, p<0.05). It was followed by openness value (B= .189, t=2.757, p<0.05), superstitious thinking (B= .265, t= -3.753, p<0.05), and school location (B= .310, t= -4.368, p<0.05). The tolerance statistic and the Variance Inflation Factor were used to evaluate the absence of multi-collinearity amidst the independent variables. Table 3 shows the non-existence of multi-collinearity among the independent variables as the tolerance and VIF values were normal.

Table 4: Predictors of School Prefects Academic Achievement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.449[a]	.202	.197	.89609013	
2	.490[b]	.240	.231	.87697364	
3	.536[c]	.287	.274	.85207576	
4	.565[d]	.319	.302	.83532804	1.844
a. Predictors: (Constant), School_Location					
b. Predictors: (Constant), School_Location, Absolutism					
c. Predictors: (Constant), School_Location, Absolutism, Superstitious_Thinking					
d. Predictors: (Constant), School_Location, Absolutism, Superstitious_Thinking, Openness_Value					
e. Dependent Variable: Zscore(Academic_Attainment)					

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.509	1	33.509	41.731	.000[b]
	Residual	132.491	165	.803		
	Total	166.000	166			
2	Regression	39.870	2	19.935	25.921	.000[c]
	Residual	126.130	164	.769		
	Total	166.000	166			

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	47.657	3	15.886	21.880	.000[d]
	Residual	118.343	163	.726		
	Total	166.000	166			
4	Regression	52.961	4	13.240	18.975	.000[e]
	Residual	113.039	162	.698		
	Total	166.000	166			
a. Dependent Variable: Zscore(Academic_Attainment)						
b. Predictors: (Constant), School_Location						
c. Predictors: (Constant), School_Location, Absolutism						
d. Predictors: (Constant), School_Location, Absolutism, Superstitious_Thinking						
e. Predictors: (Constant), School_Location, Absolutism, Superstitious_Thinking, Openness_Value						

A hierarchical regression analysis was conducted in which the independent variables were regressed on the academic achievement of the selected school prefects. School location shows to be the strongest predictor of school prefects academic achievement accounting for 20.2% of the total variance (ΔR^2=.202, ($\Delta F_{(1,165)}$ =41.73, p <0.05). This result confirms hypothesis two (See Table 4). The results further revealed that absolutism when added to school location increased the prediction to 24.0% of the variance (ΔR^2=.240, ($\Delta F_{(2,164)}$=25.921, p <0.05). It was noted from the output of the SPSS that the prediction surged to 28.7% of the variance when superstitious thinking was added to the initial two predictors (ΔR^2=.287, ($\Delta F_{(3,163)}$=21.88, p <0.05). Finally, the addition of openness value to school location, absolutism, and superstitious thinking translated the prediction of the variance to 31.9% in school prefects' academic achievement. It should be noted that the stepwise hierarchical regression analysis excluded other variables input into the model as not significant in the prediction of academic achievement of the selected school prefects. The Durbin-Watson (d) value of 1.844 shows that there is no first order linear auto-correlation in the data of the multiple linear regression, since it falls between the critical values of 1.5<d<2.5.

Discussion

The outcomes of this study revealed that flexible thinking and dogmatism components of the thinking disposition scale have positive correlations with the academic achievement of the selected school prefects. This implies that prefects with mental ability to think about multiple concepts simultaneously are good academic achievers. This confirms the affirmation of Muli (2011) that school prefects were so powerful that they could run the school outside the classroom. It is not the power attached to the office of a prefect that gave them this ability as claimed by Muli (2011), but 'flexible thinking' dispositions as demonstrated in this study. The correlation between dogmatism and academic achievement implies that prefects who follow school rules and regulations as undeniably true are good academic achievers. This lends credence to what Ige (2016) terms significant relative influence of dogmatism on students' academic self-concept.

The findings also showed that school location, absolutism, superstitious thinking, and openness values were the best predictors of school prefects' academic achievement from the twelve variables input into the multiple linear regression model. This connotes that there are marked differences in the dispositions to think of a rural school prefect than that of an urban school prefect. However, it should be noted that the other three variables namely absolutism, superstitious thinking, and openness values will combine effectively to influence the academic achievement of a school prefect regardless of the school location. These findings are inconsistent with previous research findings of Ige (2016) that absolutism, superstitious thinking, and openness values have no significant influence on students' academic achievement.

Inferences for Teacher Preparation

This study has connotations for teaching and practice in rural and urban learning ecologies. Teachers must be aware of the thinking dispositions and versatility of a student before saddling him/her with prefect responsibilities. The fact that

school location turned out to be the strongest predictor of prefects' academic achievement shows that the admission system into secondary schools must be reviewed by educational policy makers to enable thinking, and non-thinking students enjoy mutual academic relationship. Consequent on the findings of this study, it is proposed that teachers should teach thinking disposition constructs to school prefects to improve their academic achievement, and empower them with rational abilities to run the school outside the classroom.

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