

## IMPACT OF LEARNER BEHAVIOURS ON JUNIOR HIGH SCHOOL STUDENTS' ACADEMIC PERFORMANCE

**Mark Owusu Amponsah \***

*University of Cape Coast, Ghana*

**Emmanuel Kofi Gyimah      Lebbaeus Asamani**

*University of Cape Coast, Ghana*

### *Abstract*

*The study examined the impact effective learner behaviours had on learner academic performance among Junior High School students in urban, peri-urban and rural schools in the Central Region of Ghana. In a cross sectional survey, multistage sampling procedure was used to select 355 students from a population of 6115. Academic performance was measured with performance in English Language and Mathematics tests which were developed from students' textbooks in the respective subject areas. The results showed that dependence, curiosity and verbal intelligence learner behaviours had impact on and significantly predicted performance in English Language, while consideration, dependence and curiosity were significant in predicting performance in Mathematics. The locations of schools were also found to have had significant impact on learner behaviour. Based on the findings, it was recommended that learner characteristics should be carefully considered if schools expect their learners to excel in their academic endeavours. More important, gaps should be identified and bridged among rural-urban and peri-urban communities with regards to supplies of educational infrastructure and facilities.*

**Keywords:** learner behaviours; rural; peri-urban; urban; academic performance; junior high school students

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Correspondence concerning this paper should be addressed to:

\* Ph.D., University of Cape Coast, Faculty of Educational Foundations, College of Education studies, Department of Education and Psychology. Address: University Campus st., PMB, Cape Coast, Ghana. Mobile Numbers: +233242524710 / +233205055973 E-mail: [mamponsah@ucc.edu.gh](mailto:mamponsah@ucc.edu.gh)

## **Introduction**

If learners are to gain maximum benefit in the classroom it is essential that they work to the best of their ability and behave in a responsible manner, showing respect for staff and their colleagues. This means that the type of behaviour learners exhibit has crucial role to play in their learning. Learner behaviours are activities or actions portrayed by the learner which can be observed and measured in an objective way (Chauhan, 2007). Good learning behaviours are those which students display when they are using metacognitive strategies in their learning involving overt behaviours such as, 'telling the teacher what they do not understand', or 'suggesting new activities' (Boyle, Fahey, Loughran, & Mitchell, 2001). In Baird and Northfield's (1992) Project for Enhancing Effective Learning (PEEL) it came out that high academic performance is mediated by learner behaviours such as task orientation, consideration, dependence, creativity, curiosity, independence, and verbal intelligence.

### *Literature review*

Task oriented students attend appropriately to the instructional task (*e.g.*, look at the teacher or relevant task materials) (Callahan & Rademacher, 1999). In contrast, off-task behaviour in learning environments is a behaviour "where a student completely disengages from the learning environment and task to engage in an unrelated behaviour" (Baker, 2007). Findings of a research conducted by Hirvonen (2013), suggest that good performance in reading and mathematics was related to students' task-focused behaviour in achievement situations, which further predicted better performance later on. In contrast, poor performance in reading and mathematics was related to task avoidance, which predicted further poor performance. Wang and Eccles (2012) corroborate that poor learning outcomes typically lead to task avoidance, whereas good academic performance activates mastery orientation and task-focused behaviour (Onatsu-Arvilommi & Nurmi, 2000). Task oriented children willing to make an effort succeed in their learning tasks (Hughes, Luo, Kwok, & Loyd, 2008) whereas task-avoidant behaviour increases the likelihood of academic failure.

Consideration behaviour of students in the classroom includes being ethical, fair, honest and avoiding cheating (Baird & Northfield, 1992; Schaefer & Edgerton, 1978). Pornrungrroj (2014), has asserted that the moral or ethical values which makes a person virtuous and noble include self-discipline,

conscience, honesty, austerity, perseverance, and selflessness. Students' academic performance may be linked with their involvement in activities that promote ethical and moral values (Strapp & Farr, 2010; Erickson & Phillips, 2012). Chip, Cynthia, and Jane (2003), studied the character education with middle school students in Chicago, Illinois, and found that the improvement of moral character such as integrity, honesty, trustworthiness, and respect increased student academic achievement.

Dependent learners rely on teachers to tell them what is important, as well as what needs to be done and when (Warner, 2013). Classroom interaction and performance on assignments and tests showed that independent students generally asked more demanding questions, were more aware of their work habits, and were more regularly involved in high levels of intellectual activity (Loughran, 2003). In a study, Snyder (2000), found that students who had high GPA were more self-motivated, persistent and preferred to study alone. Another study which investigated the relationship between learning styles and academic achievement found that students who got A in traditional courses were less dependent and tended to be more abstract in their thinking (Grasha & Yangarber-Hicks, 2000).

Research findings suggest that there is a correlation between creative potential and intelligence (Kim, 2005). In a study conducted by Wai, Lubinski, and Benbow (2005), results indicated that individual differences in intellectual ability predicted creative endeavours as well as achievement in the arts and science (Park, Lubinski, & Benbow, 2007). Edwards (1965), examined 181 ninth grade students and found that creativity was not related to school achievement. Nori (2002), studied the sex difference and the type of relationship between creativity and academic achievement among high school students in Shiraz city. There were 306 high school students (150 boys and 156 girls) in the research. To measure the rate of creativity, Nori (2002), used an Abedi questionnaire and CGPA for academic achievement. Results revealed that there was no significant relationship between creativity and academic achievement, but the result was different for the two sexes. In contrast, Karimi (2000), replicated the studies of (Haddon, 1968; Krause, 1977) on secondary school students in the Shiraz school in Iran and findings suggest relationship between creativity and academic achievement which is in consonance with Jensen (1998) outcomes that academic achievement of students in high school strongly correlates (.50 to .70) with creativity scores.

Research indicates that curious students fear failure and keep searching and resisting all odds to succeed and to accommodate what they are learning (Gruber, Gelman, & Ranganath 2014). In one study, for example, researchers found a group of 3-year-olds who were extra curious. The researchers followed their development throughout their childhood and school experiences. At 11 years of age, these children were earning significantly higher grades than their peers. They were superior readers and had IQ scores that averaged 12 points higher than their less curious counterparts (Raine, Reynolds, Venables, & Mednick 2002). In an empirical study from Hong Kong higher education, Hon-Keung, Man-Shan, and Lai-Fong (2012), observed that students with curiosity showed higher intrinsic motivation towards acquiring knowledge in certain subjects, that resulted in improved performance. Kaufman (2013), also reported a relationship between openness to experience and creative achievement in a study involving 146 English Sixth Form students. Another study of 308 undergraduate college students affirms a relationship between openness and GPA which was mediated by reflective learning styles, suggesting that being curious improves academic performance (Komarraju, Karau, Schmeck, & Audic 2011).

Studies have demonstrated that intelligence is a main predictor of academic performance (Watkins, Lei, & Canivez, 2007). Verbal intelligence has been deemed important in the cognitive development of children (Logson, 2017). It is the ability to analyze information and solve problems using language-based reasoning which involves reading or listening to words, conversing, writing, or even thinking in the context of classroom learning. In a study, Stumpf and Stanley (2002), found that learners' verbal score on the SAT contributed approximately 40% to the likelihood of a learner graduating from college and the Mathematics score contributed 38%. Besides, Deary, Strand, Smith, and Fernandes (2007), established a strong and positive relationship between intelligence and academic achievement in an investigation between psychometric intelligence at age 11 and education achievement in 25 academic subjects at age 16. Results indicated that general intelligence contributed to academic success.

#### *Academic performance and location of school*

It is corroborated that as an outcome of education (Babatunde & Olanrewaju, 2014), academic performance of students determines their future

and nations in general (Osei-Mensah, 2012) and therefore success in school is measured by academic performance and accomplishment of different tasks given to students in tandem with institutional and educational goals (Ankomah, 2002). Academic performance can be influenced by several factors including attitude of some teachers (Adesemowo, 2005), cultural background of students, psychological problems, curriculum changes (Mzokwana, 2008), school climate, teaching methods, availability of teaching aids, assessment methods, learners' discipline, school culture, overcrowding in classes, motivation, and students' background (Dorleku, 2013).

Relationship between learning behaviours and academic performance (Akey, 2006) such as compliance with classroom activities and mastery of subject matter have been associated with positive academic outcomes (Birch & Ladd, 1997; Feshbach & Feshbach, 1987; Wentzel, 1993), while learning behaviours such as attention distractibility and withdrawn behaviours have been associated with negative academic outcomes (Akey, 2006; Kane, 2004). It is believed that when teachers spend time addressing negative student behaviours they invariably spend less time focused on classroom activities associated with negative academic outcomes. Research has shown that positive and socially appropriate classroom conduct, compliance with classroom rules and socially appropriate interactions with peers, contribute to positive academic performance (Akey, 2006). Positive learning behaviour has been associated with an increase in ability and willingness to complete classroom projects through motivation from both students and teachers. For example, attitude towards Mathematics is just a positive or negative emotional disposition towards Mathematics (Zan & Martino, 2007) which is also "an aggregated measure of" a liking or disliking of Mathematics, a tendency to engage in or avoid Mathematical activities, a belief that one is good or bad at Mathematics and a belief that Mathematics is useful or useless (Neale, 1969). It is therefore possible that students can develop positive attitude towards Mathematics as a result of their positive associated experiences. Churcher, Asiedu-Owuba, and Adjabui (2015), in their assessment of students' performance in mathematics revealed that there was a significant relationship between the performance of students in mathematics and predictors of their performance in general.

Schools which reflect the rural, peri-urban, and urban disparity in development only goes to emphasize and widen the rural-urban gap. In different locations, the settings have varying levels of educational resources. Some urban

schools' students add value to their efforts to achieve higher outputs than their peers who attend peri-urban and rural schools (Opoku-Asare & Siaw, 2015). Opoku-Asare and Siaw (2015), revealed that urban schools perform better academically than rural and peri-urban schools. They argue that large majority of weak students attend rural and peri-urban schools which limit their opportunity to impact positively on their peers. In addition, the above arguments support the belief that rural schools are simply underrepresented, and often face serious resource issues, in terms of lack of facilities, learning materials and programmes that wealthier schools in urban areas have (McClure & Reeves, 2004). In line with academic performance in rural, urban, and peri-urban settings, Adepoju (2001), found that students in urban schools show more brilliant performance than their rural counterparts. Adepoju's (2001), assertion was corroborated by Ogunleye (2002) and Ndukwu (2002), that significant difference exists in the achievement of students in urban peri-urban areas. In contrast, Daramola cited in Ogunleye (2002) did not find significant differences in the urban and peri-urban schools.

#### *Problem statement*

Learners' success in their academic endeavours significantly contributes to nation building as active citizens (Xiaosong, 2015) and most governments including Ghana for example, spend over 6% of her Gross Domestic Product (GDP) on education and has one of the highest expenditures on education as a proportion of GDP compared to other countries (Hanushek & Ludger, 2007). Though schools seek to develop children's capacity for personal achievement (Taylor, 2009), research suggests that students are becoming disengaged early on in their school careers and experience negative opinions regarding school throughout their lives (Murray & Mitchell, 2004).

Students' academic success is of special interest to educators, parents and society and in particular academic performance has become a source of concern to researchers, especially as their academic performance keeps declining (Ukpong, 2007). It is corroborated that schools in developing countries face problems such as teacher qualification, money, school attendance and parental involvement, among others (Brown, 2003). While in the western world, there is evidence to support the fact that effective learner behaviours have effect on learner academic performance (Masten et al., 1995), it is uncertain whether the same can be said for learners in the Central Region of Ghana. Again, while the

foregoing is one case, the other case is student misbehaviour including avoidance of work and rudeness to teacher (Reed & Kirkpatrick, 1998) that require a lot of energy to manage (Leung & Ho, 2001). In this study, we sought to empirically evaluate the effect of all the learner behaviours as a core determinant of academic performance among Junior High School students.

### **Objectives**

The study is premised on the assumption that, any student who exhibits effective learner behaviours do well academically (Dressler & Kirschner, 2012), while those who fail to do so are unable.

The following question guided the study:

How do the learner behaviours students in Junior High Schools in the Central Region of Ghana adopt in the instructional environment affect their academic performance?

#### *Hypotheses*

H<sub>1</sub>: There is significant difference between the learner behaviours of form one and two students in Junior High Schools in the Central Region of Ghana.

H<sub>2</sub>: There is significant difference in the learner behaviours of students in urban, peri-urban and rural Junior High Schools in the Central Region of Ghana.

### **Method**

#### *Population*

The target population of the study was all public Junior High School students in the Central Region of Ghana, numbering forty-nine thousand and sixty-nine (49,069) [Municipal Directorate of Education, Cape Coast 2016] at the time of data collection. The accessible population involved students from three of the settings, namely: Cape Coast (urban), Agona Swedru (peri-urban), and Twifo Praso (rural). The accessible population comprised Junior High School (JHS) Forms One and Two students from public schools who at the time of the study were 6115. In Cape Coast, they were 3061, while in Agona Swedru and Twifo Praso they were 2448 and 606, respectively. In terms of characteristics, sex distribution was 25,199 males and 23,870 females.

### *Instruments*

The Project for Enhancing Effective Learning (PEEL) by Baird and Northfield (1992) and Classroom Behaviour Inventory (CBI) by Schaefer and Edgerton (1978) were the two main instruments that were adapted for data collection. Additionally, the researchers contracted experts to design two test instruments in English Language and Mathematics which were used to assess respondents' academic performance. The tests were basically 30 objective tests in each subject covering all the topics treated in first and second terms. In order to validate the instruments, we pilot-tested them in one of the Junior High Schools selected from the Central Region of Ghana and obtained a reliability of .70 for the PEEL, and .83 for the CBI which were within the normal range (Field, 2005).

### *Sample and sampling procedure*

Using Cohen, Manion, and Morrison's (2007), sample size, confidence levels and confidence intervals for random samples, out of the accessible population of 6115, the researchers selected 361. The researchers however obtained 355 valid responses which were used for the analyses. The multistage sampling technique was employed in the selection of the sample with initial stratification of the region into urban, peri-urban and rural. The purposive sampling technique was then used to select one school from each of the strata, while the proportional sampling technique was used to select appropriate sample size (Krejcie & Morgan, 1970) based on the population of the individual schools.

### *Ethical implications*

Ethical clearance was obtained from the University of Cape Coast Ethical Review Board. The study did not pose any psychological harm to the participants, but measures were taken to ensure anonymity and confidentiality of the data collected. Participants' informed consent was obtained and ascents from their parents and school authorities. They were given the opportunity to opt out of the and also refrain from responding to any item or group of items on the question without any cost to them.

### *Research design*

The study adopted the cross sectional survey design which allows for accurate description of activities, objects, processes and persons (Amedahe, 2002; Burns & Grove, 2003; Shaughnessy, Zechmeister, & Jeanne, 2011). The



design helps the researcher to make informed decisions with regards to current practices and theories.

## Results

*Research Question: How do the learner behaviours students in Junior High Schools in the Central Region of Ghana display in the instructional environment affect their academic performance?*

The standard multiple linear regression analysis was used to test the extent to which each of the learner behaviour dimensions predicted academic performance of students in English Language and Mathematics tests. The assumptions for this type of test were tested and the results indicated that all the assumptions have been satisfied, with the exception of normality of distribution of the English Language and Mathematics performance scores, even after transformation. The tolerance and variance inflation factors (*see* Tables 3 and 4) also indicated that there were no issues of multicollinearity. The Durbin-Watson and skewness statistics also indicated that there were no major issues with skewness and outliers.

Table 1. Means, standard deviations, relative means, skewness, kurtosis and correlations among variables

Variables	Score range	M	SD	Relative mean (%)	Skew	Kurt	1	2	3	4	5	6	7	8
1. English	0-100	37.58	11.82		.737	1.381	1							
2. Mathematics	0-100	39.57	13.11		.815	.362	.251**	1						
3. Task oriented	6-24	18.24	2.41	.760	-.151	.487	.030	.114*	1					
4. Consideration	5-20	15.17	2.58	.758	-.237	-.467	.068	.158**	.215**	1				
5. Dependence	4-12	6.61	1.93	.551	.324	-.440	-.140**	-.160**	-.032	.014	1			
6. Creativity	5-20	13.84	2.60	.692	-.047	-.250	.089	.114*	.245**	.174**	.050	1		
7. Curiosity	7-28	19.68	2.87	.702	-.093	.012	.177**	.168**	.175**	.080	.017	.212**	1	
8. Independence	6-24	17.20	2.93	.716	-.167	.106	.133*	.128*	.221**	.109*	-.088	.174**	.165**	1
9. Verbal Intelligence	5-20	12.87	2.61	.640	-.047	-.129	.164**	.157**	.294**	.106*	.035	.226**	.330**	.196**

Note: \* Correlation is significant at the 0.05 level (2-tailed); \*\* Correlation is significant at the 0.01 level (2-tailed)

Table 1 presents the means, standard deviations, skewness, kurtosis and the linear correlations among the learner behaviours and the academic performance measures. The academic performance scores, measured with performance in English Language were generally very low. The results indicated that there were significant linear relationships between all the learner

behaviour dimensions and performance in Mathematics, but with performance in English Language, task orientation, consideration, and creativity did not relate significantly. Thus, generally, the predictors (learner behaviour dimensions) linearly related with the performance measures.

The first model (Table 2) presents the results of the extent to which the learner behaviour dimensions predicted the performance of the students in English Language test. The results showed that all the seven predictors together related positively with performance in English Language and the model was significant ( $R=.278$ ,  $R^2=.077$ , adjusted  $R^2=.059$ ,  $p<.001$ ). As indicated by the coefficient of determination ( $R^2$ ), the learner behaviours together accounted for 5.9% of the variance in performance in English Language.

Table 2. Coefficients of standard linear regression of English performance scores on learner behaviours

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	21.211	7.079		2.996	.003		
Task oriented	-.334	.277	-.068	-1.206	.229	.834	1.199
Consideration	.213	.244	.047	.872	.384	.935	1.069
Dependence	-.884	.319	-.144	-2.774	.006	.984	1.016
Creativity	.169	.250	.037	.676	.500	.874	1.144
Curiosity	.525	.229	.127	2.291	.023	.862	1.160
Independence	.321	.219	.080	1.468	.143	.905	1.105
Verbal Intelligence	.535	.259	.118	2.065	.040	.812	1.232

Note: a. Dependent Variable: English score

The results further indicated that among the seven learner behaviours tested, dependence ( $\beta=-.144$ ,  $p<.006$ ), curiosity ( $\beta=.127$ ,  $p<.023$ ) and verbal intelligence ( $\beta=.118$ ,  $p<.04$ ) significantly predicted performance in English Language. It is instructive to note that, while dependence was the strongest predictor of performance in English Language, the relationship was negative. Thus, dependent learner behaviour tends to adversely affect students' performance in English Language, while curiosity and verbal intelligence enhance the performance. The standardized equation for prediction of English Language performance as observed in this study is as follows:

$$\text{English performance} = .127(\text{curiosity}) + .118(\text{verbal intelligence}) - .144(\text{dependence}).$$

The extent to which the learner behaviour dimensions predicted performance in Mathematics test was tested in the linear multiple regression model in Table 3, which was significant ( $R=.303$ ,  $R^2=.092$ , adjusted  $R^2=.074$ ,  $p<.001$ ). All the learner behaviour dimensions together accounted for 7.4% of the variance in performance in Mathematics test.

Table 3. Coefficients of standard linear regression of Mathematics performance scores on learner behaviours

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	13.041	7.790		1.674	.095		
Task-oriented	.073	.305	.013	.239	.811	.834	1.199
Consideration	.637	.269	.125	2.370	.018	.935	1.069
Dependence	-1.112	.351	-.164	-3.172	.002	.984	1.016
Creativity	.223	.275	.044	.809	.419	.874	1.144
Curiosity	.504	.252	.110	1.998	.047	.862	1.160
Independence	.241	.241	.054	1.001	.318	.905	1.105
Verbal Intelligence	.447	.285	.089	1.569	.118	.812	1.232

Note: a. Dependent Variable: Mathematics score

The results indicated that consideration ( $\beta=.125$ ,  $p<.018$ ), dependence ( $\beta=-.164$ ,  $p<.002$ ), and curiosity ( $\beta=.110$ ,  $p<.047$ ) significantly predicted students' performance in Mathematics. Here again, dependence was the most significant predictor of performance in mathematics test, but related negatively with Mathematics test performance. Consideration and curiosity however had positive relationships with performance in Mathematics test. The standardized equation for predicting performance in Mathematics as observed in this study is: *Mathematics performance = .125(consideration) + .110 (curiosity - .164 (dependence).*

Table 4. Means for settings and forms for the learner behaviours dimensions

Dependent Variable	Setting	Form	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Task oriented	urban	JHS 1	18.043	.286	17.480	18.606
		JHS 2	17.623	.273	17.086	18.160
	Peri-urban	JHS 1	18.421	.317	17.797	19.045
		JHS 2	18.633	.230	18.182	19.084
	rural	JHS 1	18.524	.523	17.495	19.552
		JHS 2	18.333	.523	17.305	19.362

Table 4. Means for settings and forms for the learner behaviours dimensions - *continued*

Dependent Variable	Setting	Form	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Consideration	urban	JHS 1	15.457	.304	14.859	16.055
		JHS 2	15.675	.290	15.105	16.246
	Peri-urban	JHS 1	14.211	.337	13.547	14.874
		JHS 2	14.936	.244	14.456	15.415
	rural	JHS 1	15.619	.555	14.527	16.711
		JHS 2	15.762	.555	14.669	16.854
Dependence	urban	JHS 1	6.800	.228	6.351	7.249
		JHS 2	6.312	.218	5.883	6.740
	Peri-urban	JHS 1	6.070	.253	5.572	6.568
		JHS 2	6.936	.183	6.576	7.296
	rural	JHS 1	6.381	.417	5.561	7.201
		JHS 2	7.048	.417	6.228	7.868
Creativity	urban	JHS 1	13.943	.313	13.327	14.559
		JHS 2	13.688	.299	13.101	14.276
	Peri-urban	JHS 1	13.772	.347	13.089	14.455
		JHS 2	13.853	.251	13.359	14.347
	rural	JHS 1	14.095	.572	12.970	15.220
		JHS 2	13.905	.572	12.780	15.030
Curiosity	urban	JHS 1	19.329	.331	18.677	19.980
		JHS 2	18.481	.316	17.859	19.102
	Peri-urban	JHS 1	20.737	.367	20.015	21.459
		JHS 2	19.826	.266	19.303	20.348
	rural	JHS 1	20.429	.605	19.239	21.619
		JHS 2	20.857	.605	19.667	22.047
Independence	urban	JHS 1	16.629	.348	15.944	17.313
		JHS 2	17.182	.332	16.529	17.835
	Peri-urban	JHS 1	17.719	.386	16.961	18.478
		JHS 2	17.376	.279	16.827	17.925
	rural	JHS 1	17.952	.636	16.702	19.202
		JHS 2	16.048	.636	14.798	17.298
Verbal Intelligence	urban	JHS 1	12.757	.291	12.184	13.330
		JHS 2	11.117	.278	10.570	11.663
	Peri-urban	JHS 1	13.719	.323	13.084	14.355
		JHS 2	13.550	.234	13.091	14.010
	rural	JHS 1	13.524	.532	12.477	14.570
		JHS 2	13.143	.532	12.096	14.189

Observations from Table 4 suggest that for the standard errors, there was a marked increase in learner behaviour of curiosity and independence for schools in rural communities irrespective of the class. This implies that the observed

means for this category of schools could be considerably different as compared to other means for other learner behaviors.

*H1: There is significant difference between the learner behaviours of form one and two students in Junior High Schools in the Central Region of Ghana.*

*H2: There is significant difference in the learner behaviours of students in urban, peri-urban and rural Junior High Schools in the Central Region of Ghana.*

The two-way multivariate analysis of variance was used to test whether there were statistical significant differences in learner behaviours among urban, peri-urban and rural junior high students and also between form one and form two students. Examination of the covariance matrix box test (Box's M) showed that the covariance matrices of the learner behaviours were equal across the settings (Box's M=169.51,  $p=.168$ ).

The results of the multivariate test indicated that there was no significant main effect for level of students (*Form*) (wilk's lambda=.986,  $F(7, 343)=1.63$ ,  $p=.126$ ). Thus, form one students and form two students did not adopt significantly different learner behaviours in the instructional environment. Hypothesis 1 was therefore not supported by the results. It was however observed that there was significant difference in only verbal intelligence for form one students ( $M=13.3$ ) and form two students ( $M=12.6$ ) ( $M\text{ diff.}=0.73$ ;  $F(1, 349)=5.406$ ,  $p<.021$ , eta square=.015). Thus, JHS 1 students showed slightly higher level of verbal intelligence than JHS 2 students.

Hypothesis 2 however, was supported as the results showed a significant main effect of *setting* (location of school) on the learner behaviour dimensions (wilk's lambda=.809,  $F(14, 686)=5.47$ ,  $p<.001$ , partial eta square=.10). Given that there were significant main effects for settings and interaction, the between-subject (univariate) effects of the independent variable on the learner behaviour dimensions for the settings were examined to ascertain the specific learner behaviour for which there were significant differences. The Levene's test of equality of error variance indicated equality for all the learner behaviour dimensions, except dependence and verbal intelligence. The results of the between subject effects in Table 5 indicated that the settings of the students had significant effects on consideration ( $F(2, 349)=6.75$ ,  $p<.001$ , eta square=.037), task orientation [ $F(2, 349)=3.30$ ,  $p<.038$ , eta square=.019], curiosity [ $F(2, 349)=11.73$ ,  $p<.001$ , eta square=.063], and verbal intelligence [ $F(2, 349)=18.86$ ,  $p<.001$ , eta square=.098].

The Scheffe post hoc analysis for simple effects showed that task orientation learner behaviour was significantly lower among urban students than peri-urban student (mean diff=0.74,  $p<.026$ ), but no significant difference was observed between urban students and rural students or peri-urban and rural students.

Table 5. Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Setting	Task_oriented	37.882	2	18.941	3.298	.038	.019
	Consideration	87.475	2	43.738	6.751	.001	.037
	Dependence	1.468	2	.734	.201	.818	.001
	Creativity	1.273	2	.636	.093	.912	.001
	Curiosity	180.430	2	90.215	11.734	.000	.063
	Independence	32.528	2	16.264	1.917	.149	.011
	Verbal_Intelligence	224.247	2	112.124	18.857	.000	.098
Form	Task_oriented	1.061	1	1.061	.185	.668	.001
	Consideration	7.908	1	7.908	1.221	.270	.003
	Dependence	7.303	1	7.303	2.001	.158	.006
	Creativity	.887	1	.887	.129	.720	.000
	Curiosity	11.865	1	11.865	1.543	.215	.004
	Independence	19.245	1	19.245	2.268	.133	.006
	Verbal Intelligence	32.141	1	32.141	5.406	.021	.015
setting * form	Task oriented	7.460	2	3.730	.650	.523	.004
	Consideration	5.773	2	2.886	.446	.641	.003
	Dependence	35.993	2	17.996	4.930	.008	.027
	Creativity	2.191	2	1.096	.159	.853	.001
	Curiosity	15.820	2	7.910	1.029	.358	.006
	Independence	51.861	2	25.931	3.057	.048	.017
	Verbal Intelligence	42.550	2	21.275	3.578	.029	.020

The consideration learner behaviour also showed significantly lower scores for urban students than peri-urban (mean diff=.885,  $p<.01$ ), but there was no significant difference between urban and rural or peri-urban and rural students' consideration behaviour. Regarding the level of curiosity, rural students had the highest, and this was significantly higher than those of peri-urban student (mean diff=1.25,  $p<.002$ ) and higher than urban students (mean diff=1.76,  $p<.001$ ). Thus, rural students exhibited higher levels of consideration and curiosity than those from per-urban and urban settings.

The results further showed that Peri-urban students demonstrated highest verbal intelligence, which was significantly higher than those of urban students

(mean diff=1.71,  $p<.001$ ) and rural students (mean diff=1.44,  $p=.004$ ). Verbal intelligence was thus, highest among peri-urban students, followed by rural and then, urban students.

The results further showed a significant interaction main effect of settings and class (form) of students on the learner behaviours they exhibited (wilk's lambda=.923,  $F(14, 686)=1.99$ ,  $p<.016$ , partial eta square=.039). The between-subjects effects showed that the interaction effects were significant for dependence  $F(2, 349)=4.93$ ,  $p<.008$ , partial eta square=.027), independence  $F(2, 349)=3.057$ ,  $p<.048$ , partial eta square=.035), and verbal intelligence  $F(2, 349)=3.578$ ,  $p<.029$ , partial eta square=.020). It was found that in the peri-urban settings, JHS 1 students exhibited higher level of dependence learner behaviour than JHS 2 students (mean diff=0.87,  $p<.006$ ). Higher level of independence was also observed among JHS 2 students than JHS 1 students in the rural settings (mean diff=1.91,  $p<.035$ ). Finally, JHS 1 students in the urban setting exhibited higher level of verbal intelligence than JHS 2 students (mean diff=1.64,  $p<.001$ ).

### *Discussion*

The study investigated the learner behaviours exhibited by JHS students from rural, peri-urban and urban settings, and their performance in English Language and Mathematics. The learner behaviours investigated in the study are task-orientation, consideration, curiosity, dependence, verbal intelligence, independence and creativity. The results of this study indicate that the settings (locations) and some learner behaviours are significant predictors of performance of students in Central Region of Ghana. The results further show that the settings of students determine the kind of relevant learner behaviours they exhibit in the learning environment.

### *Learner behaviour and performance in English language*

The results further indicated that among the seven learner behaviours tested, dependence, curiosity and verbal intelligence are significant attributes for the performance in English Language. Indeed, it is not out of place for learners to depend on teachers for guidance for their quest for knowledge, to guide students as to what needs to be done and when (Long, 2017). An effective teacher understands that teaching involves multiple roles including decisions on what to teach and how much to teach, while taking into account each student's interests and instructional needs. At the instructional level, they provide students with the information and tools they need for mastery. Most often, they play the role of

evaluators, constantly assessing students' abilities through formal and informal assessments, providing suggestions for improvement and assigning grades. At the same time, teachers must show care and concern for every student. A teacher has the leadership power to build up or ruin a student's self-esteem. In their interaction with students, a teacher must fill the role of a counsellor and/or a surrogate parent.

Aside reasonable dependence on teachers and more knowledgeable others for their academic and intellectual development, curiosity is also very important (Perry, 2001), as the results of this study depicted. It is important that students use various learning strategies and desire to experiment to discover things and find answers to certain questions on their own, as well as enjoy their learning. Curiosity has been found to be an essential attribute for students' performance and discovery of knowledge (Raine, Reynolds, Venables, & Mednick, 2002).

The ability of the students to analyze information and solve problems using language-based reasoning represents their verbal intelligence in the context of classroom learning (Logson, 2017). Logson noted that verbal intelligence is an important aspect of cognitive development of students (Logson, 2017). The results of this study affirmed the significance of verbal intelligence in performance in English Language. This is important and logical as English Language has to do with verbal ability, and the results indicate that students' verbal intelligence behaviour was significant for their performance in English Language. This has the potential of enhancing their performance in other subject areas. The ability of students to communicate effectively with their peers and teachers in the learning environment is crucial for their general performance (Watkins, Lei, & Canivez, 2007), and development of self-esteem.

Again, with performance in English Language, task orientation, consideration, and creativity did not relate significantly. The findings in this study regarding task-orientation report contrasts with (Baker, 2007) where a student completely disengages from the learning environment, but gives credence to earlier report by (Baird & Northfield, 1992; Schaefer & Edgerton, 1978) on consideration behaviour of students in the classroom including being ethical, fair and honest. The possibility of teachers encouraging ethical behaviour among students (Prohaska, 2012) could have rippling effects on their peers (Caldwell, 2010) and asserts a prediction of autonomy (Feist, 1999) among the students in all the schools in general.



*Learner behaviour and performance in mathematics*

The results again indicated that consideration and curiosity were significant predictors of students' performance in Mathematics. Churcher, Asiedu-Owuba and Adjabui (2015) found a significant relationship between the performance in Mathematics and overall performance in other subjects in their assessment of students' performance in Mathematics and overall performance. This means that the learner behaviours of consideration and curiosity are essential for the academic and intellectual development of students. This calls for efforts to be made by educators to build these attributes in students early enough in life. The role of curious teachers (Ostroff, 2012) is essential in building students' curiosity through instruction (Shonstrom, 2014) curricula and assessment procedures (Zion & Slezak, 2005). An individual's attitude towards Mathematics and his/her beliefs about and how he behaves towards Mathematics is critical to his/her performance in Mathematics and performance in other subjects (Hart, 1989). Positive attitude in terms of intrinsic motivation (Csikszentmihaly, 1996) towards Mathematics could be engendered through creative and friendly learning experiences of the subject with their teachers, which can increase the chances of students being successful (Gray, 2013).

*Settings (location) and learner behaviours of students*

The test of hypothesis regarding differences in the learner behaviours of students in urban, peri-urban and rural Junior High Schools indicated that the settings (location of schools) played significant role in the learner behaviours of the students. The learner behaviours of significance are consideration, task orientation, curiosity, and verbal intelligence. The finding supports Opoku-Asare and Siaw's (2015), assertion that the rural, peri-urban, and urban disparity in development widens the rural-urban gap in students' intellectual development, especially in Ghana where the settings have varying levels of educational resources. This also reflects what the researchers found in one of the schools in Cape Coast where better facilities and more teachers existed than the Agona Swedru and Twifo Praso schools.

Though some urban schools' students add value to their efforts to achieve higher outputs than their peers who attend peri-urban and rural schools (Opoku-Asare & Siaw, 2015), this contradicts our post hoc analysis on task orientation which was significantly lower among urban students than peri-urban students, but no significant difference between urban students and rural students or peri-

urban and rural students was observed. The effect of this learner behaviour could not corroborate the findings of Opoku-Asare and Siaw (2015) and (Luckay, 1998) that urban schools perform better academically than rural and peri-urban schools.

Again for consideration, urban students showed a statistical significant higher behaviour than peri-urban, but there was no significant difference between urban and rural or peri-urban and rural students' consideration behaviour. This means that students in urban setting exhibit more ethical, fair, honest and avoid cheating (Baird & Northfield, 1992; Schaefer & Edgerton, 1978) than their rural and peri-urban counterparts and most probably the school climate (Prohaska, 2012) encourages ethical behaviour that influences the students' perception of their peers (Caldwell, 2010).

The level of curiosity among rural students was highest and was significantly higher than that of peri-urban student and higher than urban students. This result probably underscores (Drachsler & Kirschner, 2012) good learners being curious which indirectly indicates that the rural students are likely to be good learners motivated by curiosity and pleasure (Perry, 2001) than their other colleagues categorized as urban and peri-urban. It is again probable that the teachers in the rural schools are themselves curious (Ostroff, 2012) and build curiosity in the classroom through facilitation.

Peri-urban students demonstrated highest verbal intelligence which was significantly higher than that of urban students and rural students. In simple terms, this result signals that the peri-urban students exhibited to some extent in verbal intelligence than their counterparts. This ability to analyze information and solve problems using language-based reasoning in the context of classroom learning and significant in the intellectual development of children (Logson, 2017) could also boost performance in college in general and math in particular (Stumpf & Stanley, 2002).

### **Conclusions**

In this study, we have analyzed the prevalence of seven learner behaviours associated with academic performance in urban, peri-urban and rural classrooms in the Central Region of Ghana. The results showed that task-orientation and consideration were the learner behaviours most exhibited with dependence and verbal intelligence being the least exhibited. While all of the

learner behaviours are important in the classroom, it is to be noted that good learning is multifaceted, encompassing a range of cognitive and metacognitive behaviours. This draws attention to the need to increase good learning behaviours in schools. This can be done if teachers and parents are able to strengthen task-orientation and consideration capabilities. If students are engaged more actively in individual and group projects through assignments, educational trips, mentorship, and enrichment programmes, they could gain a lot. On the other hand, if they are left to themselves without any form of guidance, very little can be achieved and society bears the consequences. Hence congenial teaching and learning environment ought to be created to facilitate the development of positive learner behaviours. It may be naivety to expect that students would spontaneously acquire positive learner behaviours. Teachers and caregiver scan deliberately help the students to acquire positive learner behaviour.

It also came up from the study that the settings of the students had significant effects on consideration, task orientation, curiosity and verbal intelligence. Recognizing the impact of setting on the learner behaviours and academic performance, we need to ensure that the setting is congenial and adequately resourced. It also means that when educational resources are to be supplied to schools, there should not be any form of discrimination since what is good for the goose is equally good for the gander. It must again be stressed that every child has the right to quality education and if we are to operate by the 'no child should be left behind' slogan, then it will be necessary for resources to be equitably distributed, irrespective of the school setting.

It again brings to the fore the type of teachers' educational system particularly the Ministry of Education (MOE) engages to teach in rural, peri-urban or urban schools. Though there are born teachers, teachers become more effective when they are trained to perform their duties. Where unqualified teachers are posted to especially the rural settings, pupils can be denied quality instruction and education.

It will further necessitate teacher training institutions equipping their trainees with the skills that enable them to identify students who manifest positive learner characteristics. Early identification and intervention programmes are therefore necessary to help students overcome their learning difficulties. It has been pointed out that students exposed to a culture of reading and practicing Mathematics will normally perform better than those who do not have the privilege. While the foregoing plays a pivotal role, encouragement of ethical

behaviour needs to be emphasized, discussed and reinforced in class (Prohaska, 2012) and increase honesty through instructor standards (Davis & Ludvigson, 1995). Another important element is good administration in schools where an atmosphere conducive for learning will lead to performance. Besides, stakeholders who have a role to play (schools, parents) should play their roles well without taking them for granted.

The need for the learner himself or herself to learn continuously should be given attention. We need to develop their interest in communication technology especially in terms of the use of the internet. However, there should be parental and teacher guidance. Hanushek (1971), contends that good performance may be attributed to particular schools in any area. It is important for all communities (in towns and villages) to have well equipped or well stocked libraries where students could go to, to read (Pretorius, 2000).

#### *Recommendations*

It is suggested that stakeholders of education such as the Ministry of Education bridge gaps existing among rural-urban and peri-urban communities with regards to supplies of educational infrastructure and facilities. Effective monitoring of teaching and learning activities in all schools in Ghana should be considered seriously by stakeholders. In this regard, persons such as Circuit Supervisors who have the responsibility to monitor teaching and learning activities should play their roles well. When standards are set towards the attainment of educational objectives measures should be put in place to enforce them. It therefore behooves Stakeholders of Education to participate actively in school activities.

High academic performance in students in the rural, peri-urban, and urban environments could be ensured if all teachers are encouraged to build effective learner behaviours among students if such behaviours are incorporated in the syllabuses.

Various mentoring programmes should be designed by the Ministry of Education with different designs and objectives with anticipated positive changes through behaviour modification.

Government should be committed and not be rhetorical in solving/approaching educational issues.

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