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Child Temperament and Academic Performances among Kindergarteners

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ABSTRACT: The study examined the relationship between child temperament and academic performances among kindergarteners in the Wa East and Wa West districts of the upper west region of Ghana. A sample of 150 fathers were selected at random from the two districts to participate in the study. Children of the fathers selected were made of 69 boys and 81girls. Self-reported data from questionnaires were used to examine the relationship between child temperament and academic performances among the kindergarten children of the selected region.

Analyses of the data revealed that low intensity, anger/frustration, attentional focusing, fear, and falling reactivity/soothability characteristics of child temperament categories predicted the academic performances of the kindergarten children within the two districts. It was also realized from the study that the occupation of fathers exhibited significant relationship with the academic performances of the kindergarten children. However, child gender, their ages and that of fathers', fathers' income levels, and the districts of origin showed no relationship with the academic performances of the kindergarten children.

It is hereby recommended that behavioral disorder/disability centers should be established at kindergarten centers to guide and counsel practice on behave management and practices.

KEYWORDS: Temperament, Academic, Performances, Kindergarteners

INTRODUCTION

Kindergarten education embedded in the early childhood Education (ECE) is evidenced by research as the key determinant of later educational successes among children [1]. This therefore certifies that assessing the transitional academic procedures that take place within this period is commendable [2]. Although several characteristics such as home characteristics, the individual child, the social environment have been intensively researched and found to predict children's academic performances [3], [4] [5], the research on the relationship between child temperament and academic performances is minimal. Temperament at the kindergarten level have been found to predict academic prominence among children in numerous studies [6], [2] within diverse continents. However, within the Ghanaian context and the upper west region, there exist no research/study findings on the relationships between kindergarten children's temperament characteristics and their academic performances.

As temperament has being found to predict children's performances, it is worthwhile researching since kindergarten forms a key predictor of future academic successes [1] [2] of children. This forms the basis of the current investigation. Temperament relations with children's academic achievement have been proved in some continents, countries, states, and regions, but for Ghana and upper west region for that matter, there exist no such studies.

The researchers therefore investigated the relationship between child temperament and their academic achievement in two districts of the upper west region of Ghana; Wa East and Wa West districts. The indigenes of the two districts shared similar cultural orientations, believes, and general livelihood.

CHILD TEMPERAMENT

Keogh, Martin, and their Colleagues were the first researchers to examine temperament characteristics among individuals in the educational context in the late 1980s [9]. Their works were developed from the Thomas' and Chess' early works in 1977; the activity level, regularity of sleeping, and eating patterns. Other categories were; initial reaction, adaptability, and intensity of emotion. The final categories were mood, distractibility, persistence, and attention span as well as sensory sensitivity ([7], [8], [15], [12], [14], [24], [9] [18] [16]. Individual differences in temperament context were tested in the educational context [7], [2] in such relations such as its influences on children's academic performances. According to Rothbart, Ellis, and Posner (2004; p. 357), temperament

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is described as "constitutionally based individual differences in reactivity and self-regulation". Where reactivity constitutes temperament categories such as "arousability of motor, affective, and sensory response systems" (p. 1395), self-regulation constitutes the intentional modulation of reactivity measured through effortful control [10].

The positive behaviors associative of smiling and laughing constitute positive emotionality [13] while those associative of the intensity of negative affect; anger, fear, and sadness comprised the negative emotionality [26]. Temperament, constituting the two aspects of emotionality have been found to play a fundamental role in children's academic development and their general livelihood [19].

Nonetheless, as positive emotionality theoretically and empirically seems to boost academic outcomes of children, temperament at large variedly remains a key determinant of children's academic performances [11]. Associations of positive emotionality with higher academic outcomes of children could be attributed to its positive effects on the enthusiasm of children, sustained interactions, and motivation [21], [20], [7]. This therefore makes positive emotionality a fundamental predictor of children's positive outcomes. However, in the context of this study, temperament as a concept at large would be investigated to find out the its relationship with the academic performances of kindergarten children's academic performances in the upper west region of Ghana.

TEMPERAMENT AND EDUCATIONAL OUTCOMES

Temperament is a relevant determinant of children's academic performances [1], [2]. Research has illustrated a significant relationship between temperament and children's academic performances over the years within various contexts except Ghana's and its environs. Although various temperament characteristics such as low activity and high persistence have been found to be associated with high academic outcomes, the general concept of temperament is negotiable when it comes to children's academic performances [22], [17].

Temperament of children and interaction in the classroom according to research influences children's outcomes academically. The individual child and their interactive roles from an ecological perspective among other factors are determined by the temperament of the child which in turn influence classroom practices. Research has shown that the interaction qualities and children's temperament communicate teachers' classroom attitudes, interactions, and decisions. The relationship between and among these factors predict children's academic performances [23], [7]. Children's educational competence could be underestimated or overestimated depending on their temperament characteristics; children with positive temperament traits are overestimated while those with negative relations are underestimated. Inhibited children's behavior may influence their scores in class as teacher behaviors may vary pertinent to diverse temperament traits of children [23], [17]. A study by [23] illustrated relevant significant relationship between the decision of teachers and children's temperament characteristics. These relationships remain key determinants of children's academic performances.

In summary, child temperament is a significant determinant of their academic performances as it communicates the relationship quality between children and teachers. Teachers' decisions about children's academic outcomes may be influenced by such characteristics. For instance, [6] study showed that child temperament correlated with the workload per child for teachers. Thus, the amount of time spent on each child varied depending on their temperament traits. Child temperament was also found to influence teachers' frequency, criticisms, and relative academic contacts with children [6], [7].

THE PRESENT STUDY

Research evidence in temperament and children's academic performances literature has illustrated relevant significant relationship between the two concepts. Children's temperament has been found from intense research to demonstrate significant relationships (Blair et al. 2004) with their academic performances [6], [24]. The current study investigated the relationship between temperament and academic performances among kindergarteners in the two districts in the upper west region; the Wa East and Wa West districts. There exists numerous literature on the relationship between children's academic performances and temperament, however, in the context Ghana and its environs, there was no accessed literature on the concepts hence the study.

The study examined the relationship between children's temperament and their academic performances in the Ghanaian context. This would bridge the literature gap at the national level and guide teachers to incorporate and accommodate children of diverse temperament traits. As such, the Children's Behavior Questionnaire developed by [25] was used to measure the relationship between children's performances and their temperament traits.

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METHODS

Participants

The participants were 150 fathers from two districts (Wa East and Wa West districts) of the Upper West region. The indigenes of the districts shared similar believes, cultural orientations, and general livelihood. The participants were recruited through announcements in the local radio and posters on the billboards in community centers. Participants were considered for inclusion in the study if they (were biological fathers and) lived together with their wards who attended a kindergarten school at the time of the study.

Targeted children were 4 – 6 years; the typical kindergarten school going-age of Ghanaian children and that their fathers were willing to participate in the study. Finally, the participants were considered to take part in the study if they would consider a 1hour-30 minutes visit by the researchers to have them complete the questionnaires. The mean ages of fathers and children were 37.4 years and 5.3 years respectively. Sixty-nine of the children were boys and 81 girls. Sixty-three (42.0%) of the fathers (families) and combined incomes between ₵100 and ₵300 while 20.7% (31) of them had their incomes between ₵400 and ₵600. Twenty-six percent (39) of the respondents also had total monthly earnings of ₵700 – ₵900 as 11.2% (17) participants had income earnings above ₵1000. The participants were also constituted of 46.0% farmers, 20.7% teachers, 7.3% were into business or self-employed, and 26%; others. With regards to the average scores of children, 14% had scores between 0 and 49, 39.3% scored between, 50 and 59, 22.0%; 60 – 69, 14.7%; 70 – 79, while 10.0% had average scores between 80 and 100.

PROCEDURE

The researchers used self-reported data collected for the study. Questionnaires were used to collect data on the child temperament. Fathers (participants) were communicated with through telephone calls before the visit and inclusion in the study to certify they met the criteria for inclusion. Following their confirmation to participate in the study, the researchers scheduled a home visit with the participants to have them (fathers) interviewed and complete the questionnaires. Children's average scores of the previous term were reported alongside the completion of the questionnaires.

MEASURES

Child temperament

The Short Form of Children's Behavior Questionnaire (CBQ) developed by Rothbart Mary in 1966 was used to measure the temperament of children as a determinant of children's academic performances. The scale which measures behavior of children aged 3 to 7 years has 94 items that illustrate common childhood behaviors that occur at home (Ahadi et al., 1993; Kochanska et al., 1994; Rothbart et al., 1994; Kochanska et al., 1994; Rothbart et al., 2001). The instrument constituted 15 sub-scales that measured various aspects of child temperament.

Parents responded to the 7-point scale ranging from 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*) with a "*not applicable"* option if parents found that the statement does not describe their child. The Children's Behavior Questionnaire (CBQ) higher order factors demonstrated similar internal consistency reliability ranging from .61 to .94 [25] across diverse age samples among varied countries.

Children's Academic Performance

The researchers collected information on children's academic performances using a modified Children's Behavior Questionnaire (QBQ). A section was added to the questionnaire where parents recorded the average scores of the three core subjects from the previous term. The subjects included, Mathematics, English Language and Natural Science. The average scores were calculated by dividing the total score by the number of subjects. The subjects were considered because they are core to the Ghanaian kindergarten system. Any content related to numeracy was considered Mathematics and contents related to Reading, Writing, Grammar were considered English Language.

The performance scores of pupils; the average scores of children were measured using the following scale; 1 (0 - 49): Below Average, 2 (50 - 59): Average, 3 (60 - 69): Above Average, 4 (70 - 79): Good, and 5 (80 - 100): Excellent.

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RESULTS

The results were presented at different levels. The researchers first conducted a series of Multiple Linear Regression analyses to examine the relationship between the demographic characteristics of respondents (Gender, Ages of fathers and children, Districts of participants, Occupation types, and their Income Levels), the temperament characteristics of children, and children's academic performances. The temperament aspects considered in the analyses were Activity Level, Anger/Frustration, and Approach/Positive Anticipation. Others were Attentional Focusing, Discomfort, and Falling Reactivity/Soothability as well as Fear, High Intensity Pleasure, and Impulsivity. Low Intensity Pleasure, Perceptual Sensitivity, and Inhibitory Control also were part of the temperament characteristics considered including Sadness, Shyness, and Smiling/Laughter.

Secondly, One-way ANOVA analysis was conducted to assess the relationship between the demographic characteristics of respondents (gender, ages of fathers and children, districts of participants, occupation types, and their income levels) and children's academic performances. Initially, gender was added to the analyses but was insignificance at all levels so it was dropped from further analyses.

Preliminary Analyses

Kindergarten pupils' independent samples t-test conducted revealed no child gender significance among their ages, the 15 aspects of the child temperament characteristic categories, and their academic performances. However, a One-way ANOVA analysis conducted revealed a statistic significance of [$F(4, 145) = 5.697$, $p<.000$] between Jobs of Fathers and children's academic performances. Meanwhile, Ages of fathers and children, Districts of Participants, and their Income Levels illustrated no statistical significance. The Post Hoc analysis conducted using the Bonferroni measurement revealed mean significant differences among score categories; 50 – 59 and 60 – 69 ($p = .017$), 70 – 79 and 60 – 69 ($p = .003$), and 80 – 100 and 60 – 69 ($p = .008$) respectively.

Regression Analyses

The researchers further conducted linear multiple regression analysis to predict children's academic performances using the 15 categories (sub-scales) of temperament characteristics of the kindergarten children.

The study illustrated that Low Intensity statistically predict children's academic performances; [$F(1, 148) = 10.250$, p, <.002] with an R^2 of .065 illustrating a statistical coefficient significance of ($\beta = -.254$, $p = .002$). Anger/Frustration predicted children's academic performances [$F(2, 147) = 9.472$, $p < .000$ with an R^2 of .114 depicting a statistical coefficient significance of ($\beta = -.223$, $p = .005$), while Attentional Focusing [$F(3, 146) = 8.227$, $p < .000$ with an R^2 of .145 also predicted children's academic performances with a statistical coefficient significance of ($\beta = .176$, $p = .024$). Fear was found to predict children's academic performances [$F(4, 145) = 7.423$, $p < .000$ with an R^2 of .170 at a statistical coefficient significance of ($\beta = .154$, $p = .037$) and finally, Falling Reactivity/Soothability predicted also children's academic performances illustrating an equation of [$F(5, 144) = 6.895$, $p < .000$ with an R^2 of .193 depicting a statistical coefficient significance of ($\beta = .154$, $p = .044$) respectively.

DISCUSSION

The study examined the relationship between child temperament and their academic performances. The study revealed that child gender, ages of fathers and children, fathers' income levels, and districts of origin had no relationships with children's academic performances. This means that the sex of children, their ages and that of their fathers' and income levels did not play any role in their academic performances in the context of the study. The districts of participants showed no relationship with children's academic performances since the indigenes shared similar cultural orientations, believes, and general livelihood.

However, the occupation of participants (fathers) revealed significant relationship with children's academic performances in the ANOVA analysis. This indicated that the type of occupations that fathers were engaged in fostered performances of their children. Occupations considered in the study were Farming, Teaching, Business, Self-employed and others. The study revealed that based on the mean significant differences among the scores of the kindergarten children, performances varied within various score categories. This illustrated that children of fathers engaged in farming, teaching, businesses, and others attained varied scores in their kindergarten education in the context of the study.

On the relationship between the temperament characteristics of children and their academic performances, the study showed that low intensity, anger/frustration, attentional focusing, fear, and falling reactivity or soothability predicted the academic performances of the kindergarten children. Among the 15 sub-scales (categories) of child temperament characteristics, the mentioned

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characteristics were found to predict the performances of the kindergarten children. Based on the R^2 values of the variables (child characteristics), it can be concluded that, falling reactivity/soothability with the highest R^2 value was the strongest predictor of children academic performances in the context of the study. Falling reactivity was the next followed by fear, then attentional focusing, anger/frustration, and low intensity.

This implied that the five (5) temperament characteristics of children played a significant role in children's academic performances in the two districts of the upper west region, either positively or negatively. That is, the child's tendencies of low intensity, anger/frustration, attentional focusing, fear, and falling reactivity or soothability were key determinants of the kindergarten children's performances during the study. Children with such temperament characteristics such as low intensity, anger/frustration, attentional focusing, fear, and falling reactivity/soothability scored grades that were significantly varied from the others' performances.

In addition, acknowledging the Beta (β) values of the variables (child temperament characteristics), there were both negative and positive indicators. Attentional focusing, fear, and falling reactivity or soothability had positive Beta (β) values. This indicated that the temperament characteristics of children had positive effects on children's academic performances. Low intensity and anger/frustration which had negative Beta (β) values illustrated that the child temperament characteristics demonstrated negative influences on children's academic performances in the context of the study. The study therefore predicted that the kindergarten children's performances in the Wa East and Wa West districts were affected by such temperament characteristics including low intensity, anger/frustration, attentional focusing, fear, and falling reactivity/soothability.

CONCLUSION

The study examined the relationship between child temperament and their academic performances among kindergarteners. Within the temperament literature especially the Ghanaian context, the study sought to illustrate the relationship between child temperament characteristics their kindergarten academic performances. The study therefore revealed that child temperament had a significant relationship with children's kindergarten academic performances within the categories (sub-scales) of low intensity, anger/frustration, attentional focusing, fear, and falling reactivity or soothability. The study also showed that the occupation of fathers, more specifically the types of jobs fathers were engaged in influenced the performances of the kindergarten children. However, child gender, ages of fathers and children, incomes levels of fathers, and their districts of origin were found to have no significant relationship with children's academic performances. It is hereby recommended that behavioral disorder/disability centers should be established at kindergarten centers to guide and counsel practice on behave management and practices.

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