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THE CONTRIBUTION OF SELF-EFFICACY BELIEFS TO ACADEMIC ACHIEVEMENT: A CROSS-SECTIONAL STUDY OF UPPER PRIMARY SCHOOL CHILDREN IN KENYA

Dr. Joab Malea Kinzi [1]

[1](*Tom Mboya University College, Kenya*)

Abstract: *Free Many educational psychologists are interested in understanding the determinants of academic achievement among children. Among the many other factors, self-efficacy beliefs have proved to be important contributors to academic achievement. Self-efficacy beliefs refer to the judgment people hold about their capabilities to organize and affect courses of action to attain given goals. The purpose of this study was to examine the extent of the contribution of self-efficacy beliefs to academic achievement at the end of upper primary school in Kenya. the objective of the study was: To determine gender differences in self-efficacy belief and academic achievement of upper primary school Children; and to determine the contribution of self-efficacy belief to academic achievement at earlier and later stages of upper primary school Children. The target population was 4120 children, 1960 boys, and 2160 girls, ranging in age from 10 to 15 years. The research analysis involved t-tests, the determination of means and standard deviations, and Pearson's correlation. The contribution of self-efficacy belief was analysed using a linear regression equation model. The findings were that the self-efficacy of children at the age of 10-15 years contributed 22.4% to their academic achievement. On the other hand, academic achievement at these ages (10 - 15 years) in turn contributed to self-efficacy beliefs. According to the findings, self-efficacy beliefs partly mediated the contribution to academic achievement. It was concluded that self-efficacy was one of the interventions that regulate children's academic achievement through enhancing their learning activities. These findings are significant to global education stakeholders and state departments of education.*

Keywords: Self-Efficacy, Beliefs, Academic Achievement, Upper Primary School, Kenya
Research Area: Educational Psychology
Paper Type: Research Paper

1. INTRODUCTION

Both psychology researchers and educators have carried out studies to identify the best predictors of scholastic achievement. Their major concern has been to increase the potential of talented children and to develop appropriate interventions for students at risk of academic failure. Among other factors, self-efficacy beliefs have proved to be an important contributor to academic achievement (Martin, Montgomery, & Saphian, 2006). Self-efficacy beliefs refer to judgement people hold about their capabilities to organize and affect courses of action to attain given goals. Most of the studies have addressed the contribution of self-efficacy beliefs to academic achievement as independent and independent factor. The expression of diversities in views among the researchers in which self-efficacy beliefs are rooted leads to some confusion of its important contribution to academic achievement. It is for this reason that this study sorted to identify the level of contribution of self-efficacy beliefs to academic achievement.

2. BACKGROUND INFORMATION

Many researchers agree that self-efficacy account for a significant portion of variance in academic achievement (Marsh, Trautwein, Ludtke, Koller, & Baumert, 2006). According to

Martin *et al*. (2006), individual differences in personality plays a unique role in achievement in adults over and above the effects that is due to cognitive ability. Conscientiousness which is closely related to self-efficacy has been considered as the basic trait of the Big Five factors most closely linked to achievement (Digman, 1989). Meta-analysis by Poropat, (2009) pointed to self-efficacy as a strong predictor of academic achievement at both the secondary and tertiary levels of education, after controlling for intelligence. In this case, self-efficacy was associated with sustained effort and goal setting both of which contribute to academic achievement.

Other findings that have further underlined the predictive value of self-efficacy to achievement includes, Mervielde (1994) and Mervielde, Buyst, and De Fruyt (1995). They analysed teacher ratings on children of age groups 4 to 12 years and found that self-efficacy showed high correlations with academic achievement. Similarly self-efficacy were the most important personality correlates of academic achievement across different respondents in a study conducted by Barbaranelli, Caprara, Rabasca, and Pastorelli (2003).

Literature has documented a wide pervasive influence of self-efficacy beliefs on motivation and achievement, across various domains of functioning (Bandura, 1997). Pajares and Urdan (2006) carried a study in the academic domain, on the role of self-efficacy at the levels of students, teachers, and faculties. They focused on different facets of self-efficacy for academic achievement which included: The perceived ability to successfully master specific academic subjects and curricula areas and to the perceived ability to self-regulate one's own studying and learning activities (Bandura, Barbaranelli, Caprara& Pastorelli, 1996). . Both facets of self-efficacy for academic achievement exert a notable influence on learning, grades, and career choices as they sustain effort, persistence, and aspirations. Students' academic self-efficacy beliefs have been shown to be significant predictors of students' course selection, academic continuance and achievement (Britner & Pajares, 2006). Pajares and Schunk (2001) suggested that academic self-efficacy explains approximately a quarter of the variance in the prediction of academic outcomes beyond that of instructional influences. Multon, Brown, and Lent, (1991) revealed that self-efficacy beliefs were positively related to academic achievement (r= .38) and accounted for approximately 14% of the variance). Caprara, Fida, Vecchione, Del Bove, Vecchio, Barbaranelli *et al* . (2008) associated high levels of self-efficacy at the age of 12 years with higher high-school grades and with a lower probability of dropping out of school. This finding revealed that academic self-efficacy, which include the capability to master academic subjects and self-regulate one's own studying activities, predicted junior high-school performance.

3. PURPOSE AND OBJECTIVES OF THE STUDY

This study focused on the contribution of self-efficacy beliefs to academic achievement at upper primary school. The aim was to examine the level of contribution of academic self-efficacy beliefs on academic achievement at the end of upper primary school. In particular, the study objectives were:

(i) To determine gender differences in self-efficacy and academic achievement of upper primary school Children.
(ii) To determine the level of contribution of self-efficacy to academic achievement at earlier and later stages of upper primary school Children.

3.1 Hypothesis

The hypothesis of study was:

(i) There is no statistically significant gender difference in self-efficacy and academic achievement of upper primary school Children.

(ii) There is no statistically significant difference in level of contribution of self-efficacy to academic achievement between earlier stage and later stages of of upper primary school Children.

4. RESEARCH METHOD

4.1 Sample and Sampling Procedures

The target population of the study was 4120 children, (1960 boys and 2160 girls) ranging in age from 10 to 15 years. the sample was 412 children sampled at an equal ratio of 196 and 216 boys and girls respectively. The participating children were drawn from Upper primary schools in 40 schools in Kenya. This was a cross sectional study of Children from standard four to standard eight. The research was approved by a school by national commission for science technology and innovation (NACOSTI) in Kenya. In addition, parents gave consent on behalf of their children. The study includes three cohorts of children (10-11, 12-13 and 14-15 years) belonging to both early and later upper primary school classes. The assessment was done at three different time points. At any given time point the data was collected in the children's classrooms by two research assistants. All participants were assessed three times during the course of the study. Measures of self-efficacy and academic achievement were administered together at the beginning, mid and end of year.

4.2 Instrumentation

The self-efficacy scale included 15 items related to two domains of self-efficacy beliefs. The first domain referred to the perceived capability to successfully master different curricular areas. The second domain was concerned with the perceived capacity for self-regulating learning activities, such as the capacity to plan and organize the academic activities, to structure environments to be conducive to learning and to motivate themselves to do their school work. For each item, participants rated their belief in their level of capability to execute the designed activities using a 5-point Likert scale ranging from 1 (cannot do at all) to 5 (highly certain can do). Both the children's self-efficacy beliefs and academic achievement was assessed at the beginning (t1), middle (t2) and end (t3) of the year by their respective teachers. The academic grades were obtained in mathematics, science, language, and social studies using a five-level gradation (from A to E). Where A= 5points, B= 4 points, C=3 points, D=2 points and E=1 point. Academic performance at beginning, middle and end of the year was self-reported by students. They indicated their final grades in each of the subjects.

4.3 Data analysis

The data was analysed to obtain the means, standard deviations, and Pearson correlations of academic achievement and self-efficacy beliefs, and lastly regression.

5. FINDINGS

The first study objective was to determine gender differences in self-efficacy and academic achievement of upper primary school Children. The hypothesis to be tested was that there were no statistically significant gender differences in self-efficacy and academic achievement of children in upper primary school in Kenya. As a preliminary step, means, and standard deviations were computed for each of the variables. The pared sample t-test was determined and reported in Table 1.

Table 1: The pared sample t-test of Gender of children self-efficacy beliefs, and academic achievement

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Gender of children - self-efficacy	-.667	.980	.073	-.811	-.522	-9.124	411	.000
Pair 2	Gender of children academic achievement	-1.63	1.030	.077	-1.785	-1.482	-21.28	411	.000

Table 1 contain the statistical procedure used to determine whether the mean difference between Gender of children and self-efficacy beliefs, and gender of children and academic achievement was zero. The result showed that both gender of children and self-efficacy and gender of children and academic achievement had significance level of .000 (α=.000). Since p≤ .05 the null hypothesis was rejected. It was then concluded that there was statistically significant gender difference in self-efficacy and academic achievement of upper primary school Children.

The second objective was to determine the level of contribution of self-efficacy believe to academic achievement at earlier and later stages of upper primary school Children. First the means, standard deviations, and Pearson correlations of self-efficacy beliefs, for children in various age bracket were as reported in Table 2.

Table 2: Means, Standard Deviations and Correlation of Self-Efficacy Believe of Children in Upper Primary School

Children age Bracket	Means	Standard Deviation	Academic Corelation t1	Self-Efficacy Corelation t2	Tests Corelation t3
10-11 years	3.78 (3.74)	.46 (.43)	.053[ns]	.053[ns]	.047*
12-13 years	3.60 (3.76)	.42 (.45)	.040*	.038*	.038*
14 -15 years	2.96 (3.16)	.84 (.86)	.021*	.041*	.030*

Note. [a]Means and standard deviations for females are reported in parentheses.

[ns] Correlations means not significant at α= .05

*Correlations means significant at α= .05 or p < .05

[b] t1=test 1, t2= test2 and t3= test 3

Moderate to high correlations across time attested to the stability of the academic self-efficacy beliefs at test 1 to 3. Self-ratings of academic self-efficacy beliefs of children age bracket of 10-11 years at t1 were positively related with t2 for both males and females.

However, they were not significant since p -value (.053) was greater than α –value (p > .05). Similar case was with t2 but at t3 the corelation was significant with a value of .047. At 12-13 years the corelation was significantly and positively related with p -values (.040, .038 and .038) for t1, t2, and t3 respectively, all being less than α –value (p < .05). At the age of 14-15 years, the correlation values were .021, .041 and .030 for t1, t2 and t3 respectively. they all showed a significant correlation since (p < .05). From the findings it can be concluded that self-efficacy increases with the age of the children. There was a slight deference in means and standard deviation supporting the fact that there was a gender deference in self-efficacy believe.

On determining the academic achievement of children in upper primary school, the findings in table 3 were obtained.

Table 3: Means, standard deviations and correlation of academic achievement of children in upper primary school

Children age Bracket	Means	Academic Standard Deviation	Achievement Corelation t1	Tests Corelation t2	Corelation t3
10-11 years	3.29 (3.40)	.42 (.44)	.033*	.022*	.037*
12-13 years	3.27 (3.41)	.37 (.42)	.024*	.041*	.048*
14 -15 years	2.96 (3.16)	.84 (.86)	.021*	.041*	.019*

Note. [a]Means and standard deviations for females are reported in parentheses.
[ns] Correlations means not significant at α= .05
*Correlations means significant at α= .05 or p < .05
[b] t1=test 1, t2= test2 and t3= test 3

Table 3 shows that all tests at all age bracket were significant, however the value of significance deferred for each age bracket. Age bracket of 10-11 years had .033, .022 and .037 for t1, t2, and t3 respectively. Age bracket 12-13 years had .024, .041, and .048 for t1, t2, and t3 respectively, and finally Age bracket 14-15 years had .021, .041, and .019 for t1, t2, and t3 respectively. The means and standard deviations were different, supporting the fact that there was gender deference in academic achievement in upper primary schools in Kenya.

The level of contribution of self-efficacy believe on academic achievement was determined using regression analysis. This was done by investigating the existence of a relationship and eventually carrying out regression analysis. The purpose of regression analysis was to determine contribution of self-efficacy belief by determining the strength and character of the relationship between independent variable (Score of self-efficacy belief denoted by Y) and dependent variables (score of academic achievement denoted by X). The regression model used was simple linear regression equation: $Y = a + bX + u$

Where:

- Y = the variable that you are trying to predict (dependent variable).
- X = the variable that you are using to predict Y (independent variable).
- a = the intercept.
- b = the slope.
- u = the regression residual.

The findings were as shown in table 4.

Table 4: Model Summary and Parameter Estimates of Score of Self-efficacy belief and academic achievement of children in upper primary school

Model Summary and Parameter Estimates

	Model Summary					Parameter Estimates	
Equation	**R Square**	**F**	**df1**	**df2**	**Sig.**	**Constant**	**b1**
Linear	.224	51.35	1	4119	.000	12.455	.43

Dependent Variable: Total Score in academic achievement

The independent variable: Total Score in Self-efficacy belief.

Table 4 indicates that model summary of score of of Score of Self-efficacy belief and academic achievement of children in upper primary school has R^2 of .224 for linear equations. Similarly, it shows the Parameter Estimates of 12.455 as constant and .43 as b. This means that Self-efficacy belief contributes about .224 out of 1or simply 22.4% to academic achievement. This was further illustrated by figure 1.

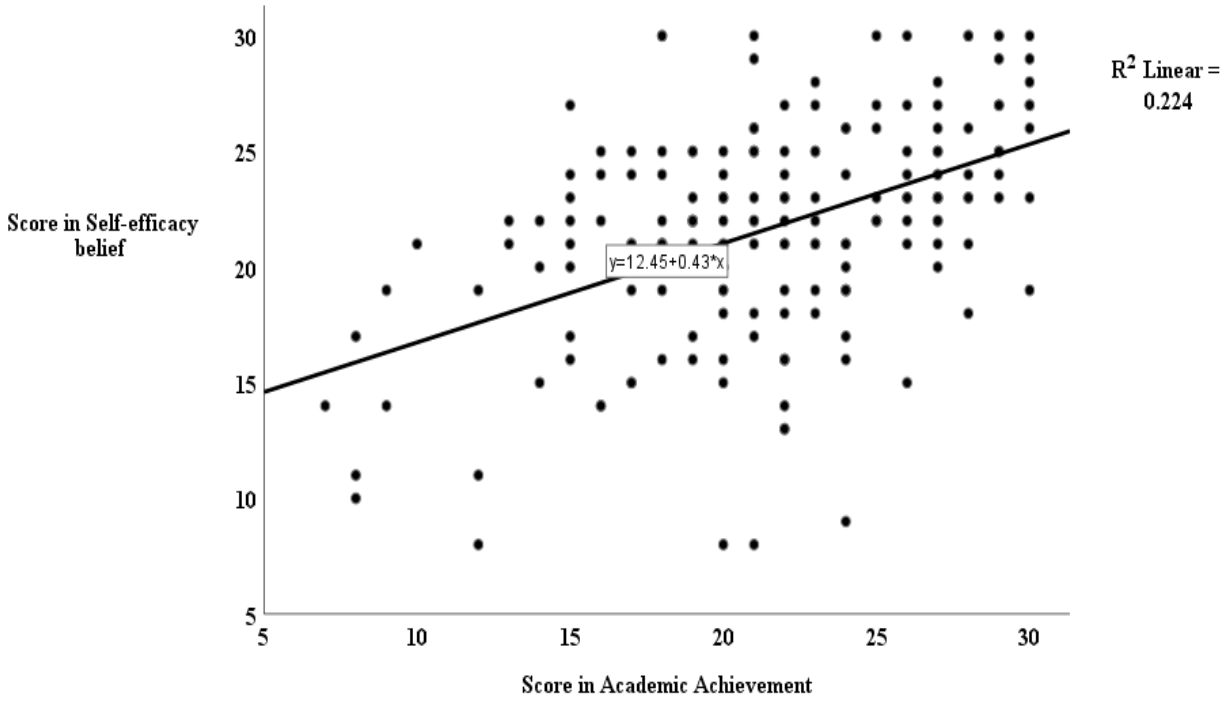

Figure 1: Regression Model and Parameter Estimates of Score of Self-efficacy belief and academic achievement of children in upper primary school

Figure 1 shows a linear graph of score of Self-efficacy belief and academic achievement of children in upper primary school. From the graph it was deduced that as Self-efficacy belief increase so do academic achievement with a slope (change) of 0.43 and R^2 value of .224. The R^2 value of .224 showed that there was a relatively high proportion of variance in independent variable that contributes to dependent variable.

Although self-efficacy beliefs have been often presented as expressions of personal views about personality functioning, (Bandura, 1997), this study found out that it is crucial in

accounting for academic achievement in upper primary school at 22.4%. In reality, individual differences in self-efficacy play a unique and distinctive role in contributing to students' achievement across different stages of academics. The contribution to academic achievement at the earlier part of upper primary school, is more than the contribution at later part. Academic self-efficacy beliefs of boys are not much different from those of girls and both contribute significantly to academic achievement. In accordance with second study hypothesis, academic achievement at the end of upper primary school significantly contributed to later perceived academic self-efficacy, while academic self-efficacy beliefs contributed to academic achievement at the end of upper primary school more than at the beginning. This is in agreement with social cognitive theory which argue that the capacity to learn from experience and to orchestrate own behaviour accordingly is the main determinants of self-efficacy beliefs, and self-efficacy beliefs is in turn determines achievement (Zimmerman & Cleary, 2006).

These findings also agreed with earlier findings from diverse lines of research (Caprara *et al.*, 2009; Chen *et al.*, 2001; Kanfer, 1992; Martocchio & Judge, 1997; Nauta, 2004). This research underlines the crucial role of belief in one's capabilities in turning basic dispositions into specific behaviours. Bandura, Barbaranelli, Caprara, & Pastorelli, (2001). argued that self-efficacy affected academic achievement directly in junior high school, and indirectly in high school, through its impact on prior academic attainment. The above findings corroborate the first study hypotheses about gender difference in self-efficacy.

This study findings have broad implications for interventions aimed to enhance children's academic pursuits. Based on social cognitive theory, its aim was to provide guidelines for enhancing students' self-efficacy to manage their educational development and to regulate their learning activities. According to Bandura, 1997, Social cognitive theorists focus on a joint effort to raise competence and confidence primarily through mastery experiences. Pajares & Schunk, 2001 adds that in reality, some progress has been made in translating this knowledge into operational models that foster self-directedness in academic pursuits juat like it is in this study, Bandura, 1997; Pajares & Urdan, 2006; Schunk & Zimmerman, 1994; Zimmerman, 1990; Zimmerman & Cleary, 2006) argue that academic self-efficacy is responsive to changes in instructional experience, teachers may play a crucial role in students' development and use of academic competencies. The study further agrees with Pajares & Schunk, 2001 and Robbins, Lauver, Davis, Langley, & Carlstrom, (2004) who said that teachers that individualize and tailor classroom instruction to each student's academic abilities encourage children to estimate their progress according to their own self-efficacy belief. According to Pajares, 2002 teachers and parents, who teach students how to set goals and monitor their learning progress, help to build their sense of efficacy for managing their academic activities and for taking full advantage of their potentials. Many researchers have argued that self-efficacy beliefs and self-regulatory habits that are developed early in life persevere and are more resistant to change (Pajares, 2002). Thus, educationists should make students' positive self-beliefs and self-regulatory strategies automatic and habitual as early as possible.

6. CONCLUSION

Self-efficacy beliefs play a major role in the promotion of academic achievement. While children move through the various school levels, Self-efficacy seems to lead the way to more deliberate individuals' effort to self-regulate learning and to strive to attain higher achievement. This finding agreed with social cognitive theory and help in opening new directions for research aimed at better understanding of how dispositions and potentials contribute to behaviours and sustain students' achievement at school.

The potential limitations of this study were the measures that were used (self-reports) and the population examined. The self-efficacy beliefs were assumed to be private cognitive states that were only accessible by the individuals who hold those beliefs and that's why they were assessed through self-report.

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