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INFLUENCE OF SCHOOL CATEGORY ON TEACHERS' SELF-EFFICACY AND ITS DOMAINS IN SELECTED SECONDARY SCHOOLS

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Abstract

Teachers' self-efficacy remains one of the most important constructs that determine their delivery and competence in schools. In Kenya, it has been reported, that there is low teachers' self-efficacy, however, no analytic attention had been paid to the influence of school category. The study examined the influence of school category on teachers' self-efficacy in Kenyan secondary schools. The study used Concurrent Embedded Design. The sample size comprised 327 teachers, obtained using stratified sampling technique. The Teacher Self-Efficacy Scale and an interview schedule were used to collect data. The reliability of teachers' self-efficacy was ascertained by using Cronbach's alpha and a reliability coefficient of 0.992 was obtained. Quantitative data was analyzed using Multivariate Analysis of Variance, while qualitative data was analyzed thematically. The results indicated that the influence of school category on teachers' self-efficacy was significant, Wilk's λ (2, 324)=0.893, $p=0.000$. Furthermore, the results show that the influences of school category on teachers' self-efficacy in student engagement, F (2, 324)=11.498, $p=.000$, instructional strategy, F (2, 324)=8.432, $p=0.000$, and classroom management, F (2, 324)=10.173, $p=0.000$, were all statistically significant. The study recommends that Teachers' Service Commission should organize mentorship programs for teachers to boost their self-efficacies.

Keywords: school category, teachers, self-efficacy, Kenya, secondary schools

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1. Introduction

Self-efficacy is the subjective belief people might have in their abilities to meet the challenges facing them, complete assigned tasks successfully and achieve set goals [1]. The concept of self-efficacy was originally developed by Albert Bandura. In addition, [2] opined that self-efficacy is the product of four factors, which were past experience, observation, persuasion, and emotion. Teachers' self-efficacy refers to teachers' beliefs in their ability to effectively carry out the duties and challenges in their daily professional activity [3]. It also refers to a teacher's belief in their ability to successfully cope with tasks, obligations and challenges, related to their professional role [4]. Therefore, self-efficacy is important to teachers because it influences whether a teacher can succeed at the assigned task of facilitating the teaching and learning process. Teachers' self-efficacy has been found to influence students' achievement and motivation because it impacts teaching effectiveness and instructional practices [3]. Therefore, appreciating the precursors of self-efficacy is necessary for effective teaching and learning process because it makes a difference in how teachers think, feel and act [5]. Therefore, past successes at a given task, observing teachers in similar situations, the role models that a teacher might have and emotional and physical experiences while teaching might increase or lower a teacher' self-efficacy.

Teachers' self-efficacy has progressively gained an important role in school psychology research as a result of its implications for teaching effectiveness, instructional practices, and for students' academic achievement [6]. Teacher self-efficacy is an important motivational construct

that shapes teacher effectiveness in the classroom. Thus, teachers with a high level of teacher self-efficacy have been shown to be more resilient in their teaching and likely to try harder to help all students to reach their potential. It has been reported, that the working environment influences a person's self-efficacy. Thus, a positive working environment increases the self-motivation, decreases depression, decreases a sense of helplessness and increases effort maximization. This indicates that schools, characterized by positive working environment, would have teachers with high self-efficacy, while those with negative working environments would have low self-efficacy [7]. Therefore, schools with negative working environments, have teachers with low self-efficacy who produce students with low self-efficacy who perform poorly and the students' poor performance leads to teachers having lower self-efficacy.

1. 1. Dimensions of Teacher Efficacy

There are three domains of teachers' self-efficacy, namely classroom management, instructional strategy and student engagement [8]. The domain for classroom management is the teachers' perceived ability to manage and respond to disruptive student behaviour. Thus, the efficacious teachers have a classroom management system that reinforces good behaviour and weakens the undesirable behaviours of the student. Teachers' classroom management style is a reflection of their instructional strategies [9]. The domain for instructional strategies is the teachers' perceived ability to create classroom environments that are conducive to learning by selecting instructional strategies that engage students in meaningful learning [10]. Thus, teachers with strong beliefs in this domain invest more time teaching than controlling students who struggle with learning their behaviour difficulties [11], and appropriately modify instruction, when necessary, to engage students in meaningful learning. Finally, the Teacher efficacy for student engagement is the perceived ability to develop relationships with all students, to motivate them to think creatively, to value learning, to improve their understanding, and to develop and strengthen their self-efficacy. Highly efficacious teachers find creative ways to keep students engaged during learning, and believe they can assist students to become and remain involved, invested or motivated for learning [12].

1. 2. Literature Review

Studies have shown that aspects of classroom management differ across different types of institutions. A meta-analysis study by [13] found that there were significant differences in the self-efficacy of teachers from different schools. In addition, [14] revealed that teachers' self-efficacy had statistically significant differences based on school category, thus, teachers in elementary schools had the highest levels of self-efficacy, while teachers in high schools had the lowest self-efficacy levels. Similarly, [15] study in USA revealed that teachers' self-efficacy differed significantly according to the school categories, thus teachers in small schools had higher levels of self-efficacy than those in learning community schools. In addition, [16] study in Ethiopia revealed that teachers' self-efficacy differed significantly according the school type with teachers in private schools scoring higher than those in public schools did. Moreover, [17] indicated that the in-service teachers at government-assisted schools reported statistically significant stronger teacher efficacy for classroom and management than teachers at government schools. However, though the difference in teacher efficacy for instructional strategies was not significant, in-service teachers at government-assisted schools reported higher teacher efficacy than those at government schools. Overall, in-service teachers at government-assisted schools held stronger teacher efficacy beliefs than their colleagues at government schools, in all measures of teacher efficacy.

In another study, [18] indicated that teachers in schools for high-achieving students reported significantly higher levels of self-efficacy as compared to their peers in regular schools. Moreover, [19] indicated significant differences on teacher efficacy scores based on school types. Extreme positive values in teacher efficacy were associated with teachers from the traditional high schools and primary schools, whereas negative values in teacher efficacy were associated only with teachers from non-traditional high schools. In another study, [20] reported that teachers who scored high on both positive general teaching efficacy and personal teaching efficacy would be active and assured in their responses to students and exhibit different types of feedback than teachers who had

lower expectations of their ability to influence student learning. Moreover, [21] revealed a significant difference among the teachers on student engagement across the different types of schools. Similarly, [22] revealed that external factors, such as category of school and the subsequent school culture, influenced teachers' self-efficacy. In another study, [23] revealed that there was a positive relationship between teachers' self-efficacy on one hand and classroom management, student engagement and teaching strategies. Similarly, [24] found out that teachers with high self-efficacy were more creative and stimulated learners in their classrooms more than the teachers with low self-efficacy did.

On the contrary, [25] indicated no significant difference between teachers' belief levels in classroom management by the type of the high school they worked in. Similarly, [26] argued that there is no difference in efficacies between different types of schools when demographic factors are held constant. Different types of school have different teaching-learning conditions, characterized by class sizes and provision of facilities [26]. In agreement, [25] revealed that there was no statistically significant difference between teachers' mean scores for student engagement by the type of the high school. In Kenya, secondary schools are categorized as Sub-County, County or National schools. The sub-county schools are the lowest category in terms of sizes, academic performance and infrastructural development, followed by county schools, while the national schools are the most established. There are studies that have reported low levels of self-efficacy among teachers in secondary schools in Kisumu-County of Kenya.

However, from the literature reviewed left methodological and conceptual gaps that needed to be filled. The studies often used either of quantitative or qualitative approach and not the mixed methods approach. In addition, most studies did not consider the variations of teachers' self-efficacy across categories of schools even where such categories were used in the study.

The Present Study

The study investigated the influence of categories of school on teachers' self-efficacy and its domains in Kenyan secondary schools.

The null hypothesis was stated as follows:

Ho: *There is no significant influence of school category on teachers' self-efficacy and its domains in Kenyan secondary schools*

2. Materials and Methods

2. 1. Research Design

The study adopted Concurrent Embedded Design within Mixed Methods Approach. Mixed methods research involves the combination of quantitative and qualitative research techniques and methods. According to [27, 28], the mixed methods approach purposes to achieve triangulation, complementarity, development, initiation and expansion of conclusions from different methods for different inquiry components. The study used the mixed method approach because it adds depth of understanding as the quantitative and qualitative aspects of the research leverage their strengths and minimize their weaknesses by corroborating each other through cross-validation [29, 30].

Concurrent Embedded Design enabled the researcher to combine the collection and analysis of both quantitative and qualitative data, in which one data set provides a supportive, secondary role in a study based primarily on the other data type [30, 31]. Consequently, the present study used the quantitative approach as the primary study, while the qualitative approach complemented it being embedded or nested in the quantitative approach. The qualitative and quantitative approaches were thereafter integrated at the analysis phase as is recommended by [31].

2. 2. Participants

This research was carried out in the year 2017. The sample size comprised 327 teachers, obtained using stratified sampling technique. During sampling of teacher participants for the study, factors, such as gender, and category of school, such as national school, county school and sub-county school, was taken into consideration. This was taken into account by sampling teachers from all these school categories. The proportion of male teachers was 64 % (n=208), while that of female teachers was 36 % (n=119).

2. 3. Measures

The teacher Sense of Self-Efficacy Scale (TSES), adopted from [8], and an interview schedule was used to collect data. The Teachers' Sense of Efficacy Scale, developed at The Ohio State University, identified three dimensions of teacher efficacy namely, student engagement, instructional strategies, and classroom management [32]. The TSES has 24 items on a nine-point scale in terms of how much they believed they could contribute to the situations presented. Some of the items in the TSES include: *How much can you do to get through to the most difficult students?*; *How much can you do to help your students think critically?*; and finally, *How much can you do to motivate students who show low interest in school work?* The responses ranged from (1) 'Nothing' to (9) 'A Great Deal'. The instruments were piloted to ensure validity and reliability. The questionnaire was examined for construct and face validity by two Kenyan Psychologists to ensure the appropriateness, meaningfulness and usefulness. Reliability of the TSES was ensured using Cronbach's alpha method and a reliability coefficient above $\alpha=0.7$ was obtained. Trustworthiness of interview data was ensured by thick description amid examination of previous research to frame the findings of this study.

2. 4. Procedure

The ethical protocol of this study was approved by the National Council for Science, Technology and Innovation in Kenya (NACOSTI/P/15/6733/7723). Permission to access teachers of the selected secondary schools was obtained from the principals. On the day of data collection, questionnaires were issued to 327 teachers, while the qualitative data was collected from 12 teachers. The data collection instruments were administered by the researcher after debriefing the respondents. The teachers filled the questionnaires themselves, while the interviews were tape-recorded and transcribed before data analysis. Informed consent was obtained from teachers, and those who accepted to participate signed consent forms, after which they were given questionnaires to complete.

2. 5. Data analysis

Quantitative data was analyzed by using descriptive statistics, such as frequencies and percentages, and inferential statistics, such as Multivariate Analysis of Variance (MANOVA). The null hypothesis was tested at the 95 % level of confidence using Wilk's λ to determine the effects of school category on teachers' self-efficacy. The Multivariate analysis of variance is an extension of the ANOVA to include two or more dependent variables in the analysis. In the present study, there were three domains of teachers' self-efficacy, namely student engagement, instructional strategies, and classroom management. There are four test results in MANOVA test list, namely Pillai's trace test, Wilk's lambda test, Hotellings, and Roy's largest root test. Among the four MANOVA tests, Wilk's lambda test is the most preferred, because it is the strongest of the four multivariate tests (Howell, 2002). Qualitative data was analyzed by identifying, analyzing, reporting and interpreting emerging thematic patterns [33].

3. Results

3. 1. Descriptive Statistics on School Category and Teachers' Self-Efficacy and its domains

The study sought to determine the influence of school category on teachers' self-efficacy and its domains of student engagement, classroom management and instructional strategy. The school categories were Sub-County, County and National schools. **Table 1** shows the descriptive statistics for school category and the domains of teachers' self-efficacy.

The results, presented in **Table 1**, show the means, standard deviations and sample sizes of the domains of teachers' self-efficacy in the school categories. From the study sample, the number of teachers in Sub-County schools was highest (N=212), followed by those in County schools (N=95) and lastly National schools (N=20). The descriptive findings for teachers' self-efficacies in the three domains were Mean $\pm$ S (33.70; 2.880) for student engagement, Mean $\pm$ SD (33.91; 3.263) and Mean $\pm$ SD for classroom management (34.21; 2.988) for instructional strategies. The

teachers in National schools had the highest means in their self-efficacies ($M=36.55$; $M=36.90$; $M=36.70$), while the Sub-County schools had the lowest mean ($M=33.42$; $M=33.57$; $M=33.92$) for teachers' self-efficacies in student engagement, classroom management and instructional strategy respectively. The County schools had the highest standard deviation ($SD=3.092$), while the Sub-County schools had the lowest ($SD=2.621$) in teachers' self-efficacy in student engagement. However, in teachers' self-efficacies in classroom management and instructional strategy, National schools had the highest standard deviation ($SD=3.754$; $SD=3.450$), while Sub-County schools had the lowest ($SD=2.909$; $SD=2.905$) standard deviation. The data was subjected to inferential analysis, specifically, the Multivariate Analysis of Variance (MANOVA), so that the influence of school category on teachers' self-efficacy and its domains could be determined.

Table 1

Descriptive Statistics for School Category and Teachers' self-efficacy

Domains of Teachers' self-efficacy	School Category	N	Mean±SD	
Self-Efficacy in Student Engagement	Sub-County	212	33.42	2.621
	County	95	33.74	3.092
	National	20	36.55	3.052
	Total	327	33.70	2.880
Self-Efficacy in Classroom Management	Sub-County	212	33.57	2.909
	County	95	34.05	3.592
	National	20	36.90	3.754
	Total	327	33.91	3.263
Self-Efficacy in Instructional Strategy	Sub-County	212	33.92	2.905
	County	95	34.34	2.842
	National	20	36.70	3.450
	Total	327	34.21	2.988

3. 2. MANOVA Results on school category and Teachers' Self-Efficacy and its domains

These differences were tested for significance using MANOVA test and the result of the multivariate analysis is captured in **Table 2**.

Table 2

MANOVA Tests School Category on TSE and its domains

Effect	MANOVA tests	Value	F	Hyp df	Error df	Sig	Partial eta squared	Noncent. Parameter	Observed power
School Category	Pillai's Trace	0.107	6.113	6.00	646.0	0.000	0.054	36.676	0.999
MANOVA test	Wilk's λ	0.893	6.274	6.00	644.0	0.000	0.055	37.643	0.999
MANOVA test	Hotelling's Trace	0.120	6.434	6.00	642.0	0.000	0.057	38.605	0.999
MANOVA test	Roy's Largest Root	0.120	12.90	3.00	323.0	0.000	0.107	38.695	1.000

Note: Computed using $\alpha=0.05$

The results in **Table 2** show, among others, the values of each multivariate test, their F-scores, degrees of freedom, significance levels and observed power. Furthermore, it shows results of MANOVA that demonstrate that the influence of school category on teachers' self-efficacy was significant, Wilk's λ (2, 324)=0.893, $p=0.000$. The null hypothesis, which stated that "*there is no significant influence of school category on teachers' self-efficacy and its domains*", was rejected and the alternative hypothesis accepted. Thus, there is a significant influence of school category on teachers' self-efficacy and its domains.

Since the MANOVA test result was significant, follow up tests were conducted to determine where the differences lie. Therefore, univariate tests were performed to determine between-subjects effects of school category on the domains of teachers' self-efficacy, which were self-efficacy in student engagement, instructional strategies and classroom management. These results were consequently examined using Tukey Honestly Significant Difference (HSD) Post Hoc tests to de-

termine significance levels for influence of school categories on teachers' self-efficacy and its domains as is in **Table 3**.

Table 3

Tukey HSD Post Hoc Tests for School Category

Dependent Variable	School Category	School Category	–	Mean Diff.±Std. Error	Sig.	95 % Conf. Interval	
						Lower Bound	Upper Bound
Teachers' Self-Efficacy in Student Engagement	Sub-County	County	–0.32	.345	0.628	–1.13	0.49
		National	–0.653	3.13*	0.000	–4.67	–1.59
	County	Sub-County	0.32	0.345	0.628	–0.49	1.13
		National	0.687	2.81*	0.000	–4.43	–1.20
	National	Sub-County	0.653	3.13*	0.000	1.59	4.67
		County	0.687	2.81*	0.000	1.20	4.43
Teachers' Self-Efficacy in Instructional Strategy	Sub-County	County	–0.42	0.361	0.472	–1.27	0.43
		National	–0.683	2.78*	0.000	–4.39	–1.18
	County	Sub-County	0.42	0.361	0.472	–0.43	1.27
		National	–0.719	2.36*	0.003	–4.06	–0.67
	National	Sub-County	0.683	2.78*	0.000	1.18	4.39
		County	0.719	2.36*	0.003	0.67	4.06
Teachers' Self-Efficacy in Classroom Management	Sub-County	County	–0.48	0.392	0.437	–1.40	0.44
		National	–0.743	3.33*	0.000	–5.08	–1.58
	County	Sub-County	0.48	0.392	0.431	–0.44	1.40
		National	–0.781	2.85	0.001	–4.69	–1.01
	National	Sub-County	0.743	3.33*	0.000	1.58	5.08
		County	0.781	2.85*	0.001	1.01	4.69

Note: *Significant at 0.05 level

The information, presented in **Table 3**, above shows the post hoc comparisons using the Tukey HSD test. The table indicates that the Mean Diff.±Std. Error scores for National schools ($M=110.15$; $SD=9.560$) on all the domains of self-efficacy, on one hand, and the Mean Diff.±Std. Error of County schools ($M=102.13$; $SD=7.340$) and the Mean Diff.±Std. Error for Sub-County schools ($M=100.91$; $SD=5.703$), on the other hand, are significantly different. Further analysis to investigate the differences in teachers' self-efficacies was performed using tests of between-subjects (tests of between school categories). The results are presented in **Table 4**.

Table 4

Between-Subjects Effects of School Category on TSE and its domains

Source	Dependent variable	df	F	Sig	Observed Power
School category	Teachers' Self-Efficacy in Student Engagement	2	11.498	0.000	0.993
School category	Teachers' Self-Efficacy in Instructional Strategy	2	8.432	0.000	0.964
School category	Teachers' Self-Efficacy in Classroom Management	2	10.173	0.000	0.986

Note: Computed using $\alpha=0.05$

The results in **Table 4** show the degrees of freedom, F-score and significance levels for the tests of between-subjects influence of school category on the domains of teachers' self-efficacy. Furthermore, the results show that the influences of school category on teachers' self-efficacy in student engagement, $F(2, 324)=11.498$, $p=.000$, instructional strategy, $F(2, 324)=8.432$, $p=.000$, and classroom management, $F(2, 324)=10.173$, $p=.000$, were all statistically significant.

3. 3. Qualitative Results

The qualitative results from interviews indicate that most of the teacher interview respondents said that the category of school has an influence on teachers' self-efficacy; with teachers in

National schools having the highest levels, while those from Sub-County schools had the lowest levels of teacher self-efficacy. This was captured by a teacher respondent who reported that, “*Yes school category influences teachers’ self-efficacy. The students in a National school motivate you. In Sub-County schools, you do your best but the students don’t give you back*” (Teacher, 5). This might be interpreted to mean that teachers’ self-efficacy is affected by the performance of the students they teach. Teachers, teaching students that perform well, therefore, have higher self-efficacy than teachers who teach students who perform worse.

Some of the respondents reported that teachers in National schools had higher levels of self-efficacy than those in County and Sub-County schools because National schools had better and more educational facilities than Sub-County schools had. For instance, one teacher who cited that, “*Category of school affects the confidence because the teachers in National schools feel they have better facilities and students and hence are better teachers*” (Teacher, 3). The expression by teacher 3 might be interpreted to mean that availability and quality of teaching-facilities affect teachers’ self-efficacy. Teachers in schools with fewer facilities, such as Sub-County schools, therefore, have lower self-efficacy than teachers in schools with more facilities, such as National schools had.

A few teachers, however, reported that category of school does not affect the teachers’ self-efficacy. They argued that teachers’ self-beliefs are similar across category of schools. He pointed out that teachers from Sub-County school led in several areas outside the classroom that brought teachers from different categories of schools together. For example, a teacher respondent said:

It does not affect the teachers’ self-efficacy. They have so much self-belief in themselves that the different categories of students compete favorably with other teachers. They also compete in teacher organizations, such as unions, subject panels, marking National examinations, games organizations (Teacher, 11).

The expression by teacher 11 could be interpreted to mean that teachers’ self-efficacy was not negatively affected by being in Sub-County schools. This was because the students competed favorably with students from National and County schools. In addition, the teachers from Sub-County schools felt they had similar levels of self-efficacy because they held positions of responsibility over teachers from County and National schools.

Furthermore, teachers’ self-efficacy in classroom management and student engagement was lower among teachers in Sub-County than in National schools. The respondents said that this is because students in Sub-County schools were slow learners who had low entry behavior, were undisciplined and lacked adequate facilities. For instance, Teacher T4 said that, “*In Sub-County schools the students take long to grasp and this lowers the self-efficacy of the teacher... we don’t even have a library and books*”. This might be interpreted to mean that students’ entry behavior affects teachers’ self-efficacy in classroom management and student engagement. Teachers who teach students with high entry behavior, such as students in National schools, have higher entry behavior than teachers, teaching students with low entry behavior, such as those in Sub-County schools did.

4. Discussion

The study sought to determine the influence of school category on teachers’ self-efficacy and its domains. The results indicated that teachers’ self-efficacies differed across different school categories in a statistically significant way. Thus, school category influenced teachers’ self-efficacy and its domains of student engagement, classroom management and instructional strategies. Teachers in National schools were found to have higher self-efficacies than teachers in County and Sub-County schools did, while teachers in Sub-County schools had lower self-efficacies than their counterparts in County schools. Moreover, on the domains of self-efficacy, the results showed that the influences of school category on teachers’ self-efficacy in student engagement, instructional strategy, and classroom management were all statistically significant. This finding is similar to studies by [13–16], all agreed that there were significant influences of school categories on teachers’ self-efficacies. Similarly, [21] reported that school category influenced teachers’ self-efficacy in student engagement. Similarly, [13] found that there were significant differences in the self-efficacy of teachers from different schools. In agreement, [14] revealed that teachers’ self-efficacy

cy had statistically significant differences based on school category. Similarly, [15] revealed that teachers' self-efficacy differed significantly according to the school categories. Moreover, [13] also revealed that teachers' self-efficacy differed significantly according to the school type with teachers. Moreover, teachers with a low level of teacher self-efficacy have been found to be less likely to try harder to reach the learning needs of all their students [35]. In contrary, [25] argued that there was no significant influence of school category on teachers' self-efficacy in student engagement. Similarly, [26] reported that there was no influence of school category on teachers' self-efficacy in instructional strategies. Finally, studies by [36, 37] all reported that the influence of school categories on teachers' self-efficacies was not significant.

Limitations of the Study. This study has one limitation in that it is restricted in the aspect of having been carried out in one county in Kenya, and bigger survey on several counties could have been more appropriate. However, since the study was carried in an urban county, it had varied teachers and hence the results are still valid and generalizable.

The prospects for further research. The implications of the study findings is that there is need for the Teachers' Service Commission in Kenya should organize mentorship programs and other activities that involve exchange programs for teachers to boost their self-efficacies. This is because the current study found that teachers' self-efficacy is influenced by the category of school with teachers in National schools having the highest self-efficacy, followed by those in County schools, and last are teachers in Sub-County schools. Future research could focus on school related factors, influencing teachers' self-efficacy.

5. Conclusion

The study concludes that school category influences teachers' self-efficacy. Teachers in National schools, therefore, are the most confident in their ability to generate creative instructional approaches, arrest students' attention to learn and manage the classroom environment best among teachers from National, County and Sub-County schools. In addition, there was a significant influence of school category on teachers' self-efficacy in student engagement, instructional strategies and classroom management. Moreover, teacher's self-efficacies in both Sub-County and County schools were significantly different from the mean score of National schools.

Conflict of interest

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining and using its results, as well as any non-financial personal relationships.

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