
PHYSICAL PLANNING AND GROWTH OF PRIVATE PRIMARY SCHOOLS IN KENYA

PLANIFICACIÓN FÍSICA Y CRECIMIENTO DE LAS ESCUELAS PRIMARIAS PRIVADAS EN KENIA

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2021

Vol.4 Num. 1

33-43

Language: English

Received: 10 August 2020 / Accepted: 11 November 2020

ABSTRACT

In Kenya, the number of private schools has increased more than four times since the introduction of the Free Primary Education (FPE) policy in 2003. The number of children attending private primary schools increased from 4.6% in 2004 to 11.5% in 2007. With such increment, there has been challenges on the determinants of growth of education institutions. It is against this background that the study examined the influence of physical planning on the growth of private

Njiri, J.; Mbugua, L.; Kiambati, K.; & Mwenja, D. (2021). Physical planning and growth of private primary schools in Kenya. *Journal of Management and Business Education*, 4(1), 33-43.

<https://doi.org/10.35564/jmbe.2021.0002>

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<http://www.nitoku.com/@journal.mbe/issues> ISSN: 2605-1044

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primary schools in Kenya. The study was anchored in the resource dependency view where the managers of institutions have the ability to acquire, Plan and maintain resources that are important to the growth of an organization. The target population in this study comprised of 7,418 private primary schools in all eight regions of Kenya. Cluster sampling technique was employed of 50% of the target regions were sampled, leading to four out of eight regions being selected. From these regions random sampling was then used to select 320 respondents who were either the principals'/Head teachers or deputy principal of the schools. A questionnaire was used to collect data and Structural Equation Modeling was used to analyse data. The study found a strong and significant correlation between physical planning and growth of primary schools. This study therefore recommended that physical planning was an important factor in determining growth of private schools. The study further recommends that owners of private primary schools should be aware of the facilities that are crucial and most important to students in the teaching and learning. This will intern influence the growth of the private primary schools in Kenya.

KEYWORDS

Kenya, schools management, structural equation modeling

RESUMEN

En Kenia, el número de escuelas privadas se ha multiplicado por cuatro desde la introducción de la política de educación primaria gratuita (FPE) en 2003. El número de niños que asisten a escuelas primarias privadas aumentó del 4,6% en 2004 al 11,5% en 2007. Con tal incremento, ha habido desafíos sobre los determinantes del crecimiento de las instituciones educativas. Es en este contexto, el estudio examinó la influencia de la planificación física en el crecimiento de las escuelas primarias privadas en Kenia. El estudio se basó en la teoría de la dependencia de recursos, donde los gerentes de las instituciones tienen la capacidad de adquirir, planificar y mantener los recursos que son importantes para el crecimiento de una organización. La población objetivo de este estudio comprendió 7,418 escuelas primarias privadas en las ocho regiones de Kenia. Se empleó la técnica de muestreo por conglomerados del 50% de las regiones objetivo que se muestrearon, lo que llevó a la selección de cuatro de las ocho regiones. A continuación, se utilizó un muestreo aleatorio de estas regiones para seleccionar a 320 encuestados que eran los directores / directores o subdirectores de las escuelas. Se utilizó un cuestionario para recopilar datos y se utilizó el modelado de ecuaciones estructurales para analizar los datos. El estudio encontró una correlación fuerte y significativa entre la planificación física y el crecimiento de las escuelas primarias. Por lo tanto, este estudio recomendó que la planificación física era un factor importante para determinar el crecimiento de las escuelas privadas. El estudio recomienda además que los propietarios de escuelas primarias privadas sean conscientes de las instalaciones que son cruciales y más importantes para los estudiantes en la enseñanza y el aprendizaje. Esto influirá en el crecimiento de las escuelas primarias privadas en Kenia.

PALABRAS CLAVE

Kenia, gestión escolar, modelo de ecuaciones estructurales

INTRODUCTION

In a number of sub-Saharan African countries, evidence shows that the elimination of school fees in public primary schools was followed by dramatic increases in private schools (Dixon 2016, Tooley and Dixon 2017, Tooley 2015, Tooley and Longeld 2017, Oketch and Somerset, 2017). The rise in private schools has been associated with high demand for school places in the face of limited supply of quality schools by the government. Majority of these schools have been born out of community or private initiative of establishing schools mainly within the urban informal settlements. Schools that levy low fees, referred to in the literature as low-cost private schools (Rose 2016, Tooley et al. 2018). The activeness of private schools has also been discussed in the studies by Javaid et al. (2016), Andrabi et al. (2018), French (2018) and Desai et al. (2019). These studies found that private primary schools are better at promoting student achievements, mainly measured in terms of test scores as compared to their public counterparts. The validity and magnitude of the private school effect is however still debated, questioned and subject to further research. Altonji et al. (2015) argue that private school advantage may be due to spurious correlations between school attendance and unobserved student and family characteristics. Children who attend private schools may already have high academic potential or even access to complementary educational resources in a manner that is not easily observable. Endogenous selection into private schools is quite evident in sub-Saharan African countries.

In Kenya, studies have shown that poor parents bypass free public primary schools and send their children to otherwise fee-paying low-cost private schools due to perceived better quality in private schools (Tooley et al. 2018, Oketch and Ngware 2018). Such parents, are more concerned with the quality of education for their children, despite being poor, and are more likely to ensure that the home environment is favorable for learning. This indicator is not easily observed but can only be taken as latent. Evidence shows that accounting for such unobservable factors can wash away or dramatically reduce the private school advantage.

Private Primary schooling in Kenya has expanded over the past decade (Tooley et al. 2018). However, there is a dearth of studies that look at the effectiveness of these schools. Research has mostly focused on understanding why households, mainly poor households, choose to enroll their children in low-fee paying private schools and not in free public schools of which the reasons vary. Tooley et al. (2018) and Oketch and Somerset (2017) found that perceived better quality of private schools (in terms of teaching, teacher attendance, school performance, small class size and discipline) is a key driver of parents' choice of private schools. Oketch et al. (2016) focused on urban areas while Nishimura and Yamano (2013) focused on rural areas and both found that an increase in household wealth is likely to lead to the household enrolling a child in a private school.

Bold et al. (2013), estimated the effect of private schools on student scores while addressing the indigeneity of school choice in Kenya. The study also found that low-fee private schools generally lack school infrastructure and facilities,

trained teachers and adequate teaching and learning resources. These schools are characterized by high student and teacher turnover of which tuition fees in these schools' average less than USD. 10 per month. Having reviewed these studies, it was evident that various factors do contribute to the growth of private schools, with increase in number of pupils in these schools. Thus, the purpose of this study was to scientifically model the role played by physical planning in the growth of private primary schools in Kenya. This study therefore aimed at bringing out the relationship between physical planning and growth of private primary schools as well as ascertaining the contribution of leaning infrastructure on growth. The other goal of this study was to reveal any existing gaps in private primary schools' management, that education policy-makers, managers and administrators would rely on when planning for strategies for growth of the schools as well as enhancing quality education to realize good performance as well as to provide a useful reference point for further research by other scholars.

METHODOLOGY

The study was guided by the philosophy of positivism in which existing theory is tested using research hypothesis. The study adopted a mixed method approach in which both qualitative and quantitative approaches were used in data collection and analysis to enhance deeper understanding of the topic and provide the basis to validly and accurately answer the research question Huang et al. (2015). One of the outstanding strengths of this approach is that it offset the weaknesses of both quantitative and qualitative research (Venkatesh, et al. 2013). Also, the analysis of mixed method data provides more accurate conclusions thus contributing valuable ideas to literature (Palinkas, et al., 2013). The target population for this study were the head teachers from all the 7,418 private primary schools distributed in eight regions (formally provinces) in Kenya. Four of these regions were selected randomly, thereafter simple random sampling was used to sample the study participants in each of the four regions. The rationale behind this sampling technique was to ensure that the sample selected in this study maintained homogeneous characteristics (Otieno et.al., 2012) as well as to reduce the total number of interviews and costs given the desired accuracy. The study sample size was derived from Susan et al., (2014) approach in which to compute the sample size with a finite population, Cochran's Formula is used.

$$n_0 = \frac{z_{\alpha/2}(1-p)p}{e^2}$$

For finite population, the sample size is modified using the formulae:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

For maximum variability, p is taken to be 0.5. This study proposed a 95% confidence, and at least 5 percent—plus or minus—precision. A 95 % confidence

level gave a Z value of 1.96, per the normal tables. Thus, using the Cochran formulae: $((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 385$, a random sample of 385 households was deemed enough to give the study, the confidence level needed. Modifying the sample size for finite population size, the new adjusted sample size was obtained as $385 / (1 + (384 / 3,431)) = 346$ Primary Private Schools. To factor in for non-response, the sample size was inflated by 10% leading to 380. Thereafter, the sample size was distributed proportionally in the four selected regions of the study as presented in Table 1.

Table 1. Sample Size Population

No.	Region	Population	Formulae	Sample Size	Sample Size Inflation (10%)
1	Nairobi	1,066	$346(1066/3431)$	108	10
2	Central	1,361	$346(1361/3431)$	137	13
3	North Eastern	125	$346(125/3431)$	13	3
4	Coast	879	$346(879/3431)$	87	8
TOTAL	3,431		346	380	

The study administered questionnaires to collect primary data. The questionnaires had open ended items of which some were of Likert style questions. The questionnaires were dropped to the respondents and the researcher picked them up after they were fully filled. Prior to the main data collection, a pilot study test was conducted to test the data collection instrument for the purpose of reliability and validity before the main study. The overall Cronbach alpha value during piloting 0.745, which was more than 0.7. Hence the items were deemed reliable (Doughlas and Thomas, 2014). To enhance validity, the questionnaire was discussed with experts to ascertain both content and face validity. For content validity, the shortfalls of the research instrument in anticipation of what ought to be measured as per the research questions was ascertained. The expert's opinions were used to identify the face validity by checking on its structure and grammar and other issues which may have minimized the chances of the questionnaire being responded to or fall short of collecting the desired data.

RESULTS

The study examined the influence of physical planning and the growth of private primary schools in Kenya. On adequacy and well-kept dormitories in the schools, 6.4 % strongly disagreed that the dormitories were adequate and well kept, 3.8% disagreed, 14.4% were neutral, 48.4 % agreed and 27.2% strongly agreed. Cumulatively, about 75.6% agreed that private schools had well-kept dormitories. On school facilities for Co-curricular activities, 8.8 % strongly disagreed, 11.9 % disagreed, 22.5 % were neutral, 37.8% while 19.1% strongly agreed. On equipped computer labs and projectors for content delivery that promotes ICT, 9.4%, 14.6 % disagreed, 7.8 % were neutral, 28.8 % agreed while 39.4% strongly agreed. On library equipment with pre-requisite and adequate books meant for both pupils and teachers, 4.7 % strongly disagreed, 6.3% agreed, 20.6% were neutral, 46.3% agreed and 22.2% strongly agreed. A total of 68.5 per cent of the respondents were in agreement that most of the schools have

a well-equipped Library with enough books. On prioritization of school's infrastructure to meet the set deadlines, 5.6% strongly disagreed, 9.1% disagreed, 24.1% neutral, 40.9% agreed while 20.3% strongly agreed. From the respondents, it was evident that 61.2 per cent of the respondents agreed to the fact that there was prioritization of school's infrastructures to meet the set deadlines. On sufficient allocation of funds for learning infrastructure, 5.3% strongly disagreed, 4.1% disagreed, 25% were neutral, 45% agreed and 20.3% strongly agreed. On if decisions on learning infrastructure development are made through consultations between teachers, board, parents and other stakeholders 6.6% strongly disagreed, 6.6% disagreed, 19.7% were neutral, 46.9% agreed while 20.3% strongly agreed. 67.2% implied that decision on learning infrastructure development are made through consultations between teachers. This is one of the keys required of Corporate Governance which advocates for democratic governance and consultation among stakeholders. These results are summarized in Table 2.

Table 2. Descriptive Statistics on Physical Planning

Statement	SD	D	N	A	SA
There are adequate and well-kept dormitories in the school	6.5	3.8	14.4	48.4	27.2
The school has facilities for Co-curricular activities for both indoor and outdoor activities promoting the nurturing of talents and personal development of our pupils.	8.8	11.9	22.5	37.8	19.11
The school has an equipped computer lab and projectors for content delivery that promotes ICT.	9.4	14.6	7.8	28.8	39.4
The school has well-equipped Library with enough books needed by both pupils and teachers.	4.7	6.3	20.6	46.3	22.2
There is prioritization of school's infrastructure to meet the set deadlines	5.6	9.1	24.1	40.9	20.3
There is sufficient allocation of funds for learning infrastructure	5.3	4.1	25	45	20.3
Decisions on learning infrastructure development are made through consultations between teachers, board, parents and other stakeholders	6.6	6.6	19.7	46.9	20.3

SD- Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA-Strongly Agree

Confirmatory factor analysis (CFA) was conducted to evaluate the measurement model on multiple criteria of internal reliability, convergent, and discriminant validity. Two statistical tests which assess the suitability of data for structure detection were performed. These are the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's Test of Sphericity. The KMO value reported from the collected data in this study was 0.709 which was close to 1 implying that factor analysis was suitable. With ($p < 0.05$) in the Bartlett's Test of Sphericity, this was an indication of suitability of data for structure detection. In addition, the prob. value of Bartlett's test of sphericity was less than 0.05, an indication that the correlation between the items at the 5 percent level of significance was sufficient and adequate for further analysis (Civelek. 2018).

Confirmatory Factor Analysis (CFA) was conducted and subjected to maximum likelihood estimation in which a chisquare value with ($p < 0.005$) was obtained. This indicated an acceptable fit between the hypothesized model that

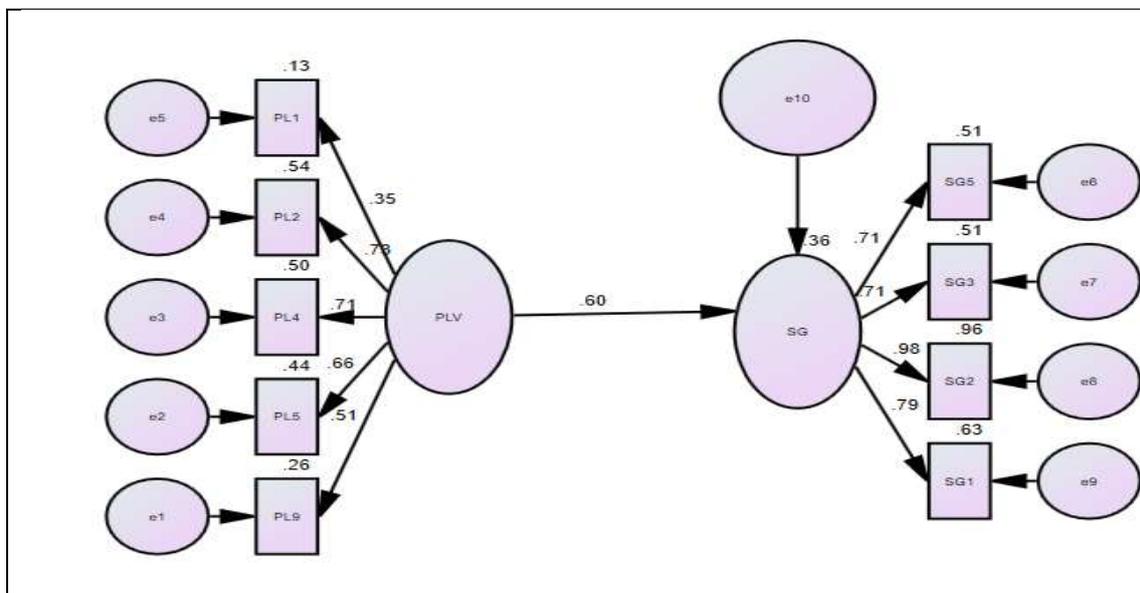
School’s Physical Learning Infrastructure had a significant contribution to the growth of private primary schools in Kenya and the sample data. The results showed the comparative fit index (CFI) was above the recommended value of 0.90 and therefore significant. This was supported by the goodness of fit index (GFI, 0.932), aggregate goodness of fit index (AGFI, 0.890 and the normed fit index (NFI, 0.944)) whose values met the minimum requirement of 0.900 for significance. The root mean square value was also significant with P value of 0.038 which was less than 0.05) (Civelek. 2018).

Table 3. Model- Fit Indices for the Influence physical planning

Model	CFI	GFI	AGFI	NFI	RMSEA
Default model	.993	0.932	0.890	0.944	0.038
Saturated model	1	1		1	
Independent model	0	0.353	0.209	0	0.392

The path coefficients obtained indicated that the path was positive and significant at 0.05 level of significance. The path coefficient beta value obtained was $\beta = 0.096$. This indicated that for every one-unit increase in physical planning, school growth is predicted to increase by 0.096. In addition, all the factor loadings were well above 0.5 and therefore they were within the acceptable threshold, as shown in Figure 1. The results showed a positive (regression weight =0.60) and statistically significant relationship between physical planning and growth of private schools. In this regard the null hypothesis that there was no relationship between private schools physical learning infrastructure and growth was rejected at 5% level of significance 2-tailed test.

Figure 1. Path Coefficients for Physical Planning



The overall path coefficients, standard errors, and p values are summarized in Figure 1 and Table 4.

Table 4. Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	.043	9.543		.005	.006
PL	8.739	2.428	.096	3.600	.000

DISCUSSION AND CONCLUSION

The results found significant correlations between physical planning and growth of primary schools. These results were in agreement with literature that physical planning is an important factor in determining growth of a school (Mayama, 2012). A school that has adequate instructional materials is likely to post better quality grades than a school which has poor quality physical resources. Therefore, governance structures must be designed to improve the quality of physical planning decisions. It can also be argued that schools which have implemented effective physical planning measures, are likely to have also adopted strategies that will result in long-term sustained growth of the school. Availability of physical learning provisions like fields, music rooms, theater rooms among others, helps the students to participate in different activities which helps in developing the learner physically, socially mentally and emotionally Gogo (2012).

Dixon (2016) agree with these findings that physical planning contributes to growth of schools, they state that materials used in constructions of school buildings and type of buildings determine the levels of cleanliness. When cleanliness in schools is maintained students get attracted and motivated and this will contribute to good academic performance of the students hence growth of the institution. The state of physical facilities in private primary schools appears to be of great concern to educators. Moreover, as the enrolment rate keeps going up, the owners of the schools should avail more physical learning resources to motivate learners, hence more improvement in performance and therefore growth of the schools. Important educational processes are found to have been strongly influenced by physical facilities provision, classroom maintenance and other physical inputs. The findings suggest that it would be counterproductive for private primary schools in growing economies like Kenya to try to provide primary education without the basic technology which advanced economies have long taken for granted. These academic institutions should be aware of the facilities that are crucial and most important to students in the teaching and learning and also school life that directly influences them in achieving excellence in academic. Overall, this study provides guidelines to academic institutions to provide facilities to achieve the brilliant academic performance of the students. This will directly influence the growth of the private primary schools in Kenya. One of the limitation of this study is that the study did not include financial management, board diversity and compensation package which were also found to be crucial as reported by the respondents.

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ACKNOWLEDGMENTS

I thank Professors Dominic, Kellen and Levi for their continued advice and inspiration. During the completion of this paper, their continued support has led me to this far.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

FUNDING

The author received no financial support for the research, authorship, and/or publication of this article.

Cita recomendada

Njiri, J.; Mbugua, L.; Kiambati, K.; & Mwenja, D. (2021). Physical planning and growth of private primary schools in Kenya. *Journal of Management and Business Education*, 4(1), 33-43. <https://doi.org/10.35564/jmbe.2021.0002>
