Influence of Home Environment Infrastructure on Academic Performance of Students in Meru Country

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Abstract

The environmental condition and the nature of social interaction that goes on in the family may have some positive or negative influence on the academic achievement of a child. However, the performance of the students has been left in the hands of the teachers and they are solely blamed for the learners' poor performance. This study investigated the perceived influence infrastructure on the secondary school students' performance. The study used a cross-sectional survey research design. The study employed structured questionnaires and interview schedules to collect data. The target population was 109,151 consisting of students, teachers and parents. A sample size of 598 respondents consisting of purposively sampled 212 teachers and multistage sampled 212 students and randomly sampled 174 parents was used in this study. The data was analysed using descriptive statistics such as frequencies, means, standard deviation and percentages. The study established that phone ownership and excessive use of phones by students negatively affect students' academic performance. The study also recommends that parents should control their children's use of mobile phones.

Keywords

influence, home Environment infrastructure, academic performance

1. Introduction

Osunloye (2008) argues that academic attainment is an important parameter in measuring success of students. Poor academic performance has been recorded in secondary schools in many African countries (Osunloye, 2008). Over a period of time, it has been observed that students exposed to the same lessons by the same teachers perform differently when they are evaluated (Adesehinwa, 2013). This shows that academic performance of a student is not only influenced by school related factors but also by other factors outside the school environment. Also differences in the academic performances of gifted and non-gifted children cannot be traced to school environment (Adesehinwa & Aremu, 2010). Thus, many other uncontrolled variables may be responsible for academic performance of students. Adell (2002) consider family background as the most important and most weighty factor in determining

the academic performance of the student. Among family factors of greatest influence are social class, education and family environment (Egunsola, 2014). Emeke (1984) in Egunsola (2014) stressed that the environmental condition and the nature of social interaction that goes on in the family may have some positive or negative influence on the academic achievement of a child.

Home environment is the physical and psychological conditions that affect children in their home surrounding (Ogbemudia & Aiasa, 2013). Furthermore, in pupil's home environment, some factors that may influence their academic performances include: parents' educational background, occupation, economic status, marital status, home location, family size and peer group. Thus, the home is the basic institution that socializes and lays the educational foundation for the child upon which the other agents of socialization are built (Egunsola, 2014). The education received by a child from parents and others at home has high potential of affecting the behaviors of the child later in life. What the child learns at home and how his/her family motivates him/her towards education contributes to the child's success or failure at school.

Technology at home has been found to influence the students' academic performance in the long run. One of the new technologies at home which has been found to influence the students' performance is the negative use of mobile phones. With these gadgets, the students are able to access internet and in most cases get addicted to some sites which gradually withdraw them from their school activities. Internet has been known to have a negative influence on the behaviour of many youths, resulting in declining academic performance (Wanajak, 2011). For instance in Thailand, the Thai Health Foundation, acting on public concerns about internet use among young people requested that the Ministry of Culture conducts a survey focusing on the negative impacts of internet use, particularly in relation to online gaming.

The Ministry of Culture survey, which did not report any of the research design components of the study, was conducted among Thai young people and found that a significant proportion reported having problems with their eyesight (78.3%), wasting money and time (70.8%), having no time for homework (62.4%), having insufficient rest (51.6%), and exhibiting more violent behaviours than previously (37.5%) (Nakornthap & Masateianwong, 2007). From this study, the Thai Health Foundation concluded that youth who become addicted to the new technologies and who lack parental guidance are at a risk of becoming prone to crime and immorality propagated through the Internet and mobile telephones. They recommended that parents teach their children about using these technologies appropriately (Nakornthap & Masateianwong, 2007). The currents study sought to establish whether similar perceptions are held among respondents in Meru County.

In Kenya, a study by Mwaura (2014) on home based factors influencing students' performance in KCSE in public day secondary schools reported that educated parents assist their children in doing their school work. The study indicated that parents' socio-economic status influences the students KCSE performance. Mwaura (2014) established that teachers perceived that parents contribute to students' participation in home chores and as such more time is spent on home chores than on school work. The

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current study focused on the perceived influence of home infrastructure, on academic performance in public secondary schools.

The study was guided by the following objectives:

1) To investigate on the types of infrastructure Possessed at home of students in meru count;

2) To determine the Perceived Influence of Electronic Devices at home on Academic Performance of students in Meru County;

3) To establish the Perceived Influence of Home Infrastructure on Academic Performance of students in Meru County.

2. Methodology

This study used a cross-sectional research design to assess the perceived influence of selected home environment factors on the secondary school students' academic performance. The target population was 109,151 subjects made up of 52,650 students, 52,650 parents and 3,851 teachers in the 351 public secondary schools in Meru County. A sample of 598 respondents was selected for the study using multistage, purposive and simple random sampling from the 106 schools that had been sampled through simple random sampling method. Data was collected using structured questionnaires and interview schedules. Questionnaires were developed for parents, teachers and students. The questionnaires sought information on types of infrastructure found in the homes of respondents, and their perceived influence on academic performance. The researcher pre-tested the questionnaires before carrying on with the main study. Instruments were validated by experts in Educational research from Moi University. The researcher used the Cronbach's Coefficient alpha to estimate the reliability. The instruments realized a reliability coefficient of 0.72.

Quantitative data was analysed using descriptive statistics. Descriptive statistics consisted of frequencies and percentages. The analysed data was presented by use of figures and tables. Qualitative data was analysed thematically. The patterns identified in the data were used to develop themes that addressed study objectives. The researcher observed and adhered to the ethical standards and issues with regard to: voluntary nature of participation and the right to withdraw by individual participant from the process.

3. Findings

An item was included in the parents and students questionnaires that sought information on the types of infrastructure found in their homes. Information on infrastructure was relevant to the study since it formed bases for the analysis of the influence of the facilities on the academic performance which was the focus of the study. The findings are presented in Table 1.

Table 1. Infrastructure Possessed at Home

Statement	Parents				Students			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Have a radio at home	174	100	0	0	193	100	0	0
Have a television at home	44	25.3	130	74.7	40	20.7	153	79.3
Have a computer at home	0	0	174	100	10	5.2	183	94.8
Have a DSTV at home	0	0	174	100	5	2.6	188	97.4
Have a mobile phone at home	174	100	0	0	193	100	0	0
Have a study room/reading space at home	174	100	0	0	190	98.4	3	1.6
Have electricity at home	44	25.3	130	74.7	50	25.9	143	74.1
Have a home library	29	16.7	145	83.3	38	19.7	155	80.3
Have internet facility at home	0	0	174	100	15	7.8	178	92.2

The findings revealed that 100% of the students and the parents indicated that they had radios and mobile phones at home. This was in line with results from interview schedules held with parents. In addition, 100% of the parents and 98.4 percent of the students indicated that they had a study room or reading space at home. This was agreed with findings from interview schedule which indicated that most homes provide reading space for children. However, most (74.1%) of the students and 74.7% of the parents indicated that their homes had no electricity. It was also established that most homes lacked television as reported by 79.3% of students and 74.7% of the parents and also lacked computers as indicated by all parents and 94.8 percent of the students. Only 19.7 percent of students and 16.7 percent of the parents indicated that they had a home library. Internet facility was also missing in homes according to 100% of the parents and 92.2 percent of the students. This could be attributed to the finding that most homes had no electricity which is essential in the operation of such devices.

The study further sought to establish the perceived influence of infrastructure at home on academic performance of students. The findings are presented in Table 2 (SA represents Strongly Agree, A represents Agree, U represents Undecided, D represents Disagree and SD represents Strongly Disagree).

Table 2. Perceived Influence of Electronic Devices at Home on Academic Performance

Statement	Response	Students		Parents		Teachers	
		F	%	F	%	F	%
Students owning a phone negatively influence their academic performance	SA	12	6.2	14	8.0	20	17.9
	A	50	25.9	60	34.5	70	62.5
	U	80	41.5	80	46.0	2	1.8

	D	41	21.2	14	8.0	10	8.9
	SD	10	5.2	6	3.4	10	8.9
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Students' use of phones for playing games, chatting, browsing among others negatively influence their academic performance	SA	28	14.5	10	5.7	30	26.8
	A	120	62.2	68	39.1	72	64.2
	U	25	13.0	80	46.0	6	5.4
	D	15	7.8	8	4.6	2	1.8
	SD	5	2.6	8	4.6	2	1.8
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Students watching TV programmes negatively influence their academic performance	SA	5	2.6	14	8.0	8	7.1
	A	60	31.0	30	17.2	12	10.7
	U	80	41.5	90	51.7	20	17.9
	D	35	18.1	34	19.5	60	53.6
	SD	13	6.7	6	3.4	12	10.7
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Students playing computer games negatively influence their academic performance	SA	5	2.6	6	3.4	4	3.6
	A	20	10.4	18	10.3	10	8.9
	U	56	29.0	34	19.5	16	14.23
	D	83	43.0	112	64.4	68	60.7
	SD	29	15.0	4	2.3	14	12.5
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Using internet for education negatively influence students' academic performance	SA	4	2.1	2	1.1	2	1.8
	A	16	8.3	10	5.7	4	3.6
	U	27	14.0	14	8.0	8	7.1
	D	96	49.7	112	64.4	66	58.9
	SD	50	25.9	36	20.7	32	28.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Students watching DSTV programmes negatively influence their academic performance	SA	5	2.6	8	4.7	10	8.9
	A	17	8.8	18	10.3	18	16.1
	U	34	17.6	38	21.8	20	17.9
	D	100	51.8	80	46.0	44	39.3
	SD	37	19.2	30	17.2	20	17.8
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Sometimes playing and watching programmes negatively influence students' academic performance	SA	5	2.6	8	4.7	4	3.6
	A	17	8.8	18	10.3	40	35.7
	U	34	17.6	38	21.8	56	50

D	100	51.8	80	46.0	8	7.1
SD	37	19.2	30	17.2	4	3.6
Total	**193**	**100**	**174**	**100**	**112**	**100**

The findings show that most (62.5%) of teachers felt that students owning a phone negatively influenced their academic performance. However, 41.5 percent of the students and 46 percent of the parents were undecided whether using the phone influenced the students' academic performance. Results from interview schedule indicated that students with mobile phones often used them to chat, browse internet, play games and watch videos. These findings agree with the findings of Aucker man (2001) who found in his study in Japan that 68 percent of students who had poor grades owned a cell phone. The findings are also to Chen (2006) findings that excessive use of cell phone which is addictive negatively influences the students' academic achievements.

The findings also show that most (64.2%) of the teachers and most (62.2%) of the students agreed that the way the students used their phones (playing games, chatting, browsing) negatively influenced the students' academic performance. Interview schedule with teachers and parents mainly indicated that students with mobile phones are not able to manage their time effectively and often use them for leisure purposes at the expense of education. An interview with students indicated that a sizable number of students utilised mobile phones to access educational issues via the internet. However, some of them used phones for chatting, playing games and watching movies.

As to whether watching TV programmes during leisure time negatively affected academic performance, the findings show that 53.6 percent of the teachers disagreed with the statement while 41.5 percent of the students and 51.7% of the parents were undecided. The findings from interview schedule indicated that some homes had no television and hence they could not conclusively indicate the impact of watching television on academic performance of students. However, parents who indicated that their children had access to television perceived that watching television had no influence on academic performance of their children.

The study further sought to determine whether playing computer games during free time negatively influenced students' academic performance. The findings show most 64.4% of the parents and 60.7% of teachers disagreed with the statement. The study further found that most homesteads did not have computers hence this could explain the perception that that playing computer games did not influence the students' academic performance.

As to perception on whether the use of internet for educational matters negatively influenced academic performance, the results show that 49.7 percent of the students, 64.4% of the parents and 58.9% of the teachers disagreed with the statement. An interview schedule indicated that students use internet facility for both academic and leisure purposes. Teachers indicated that access to internet via school computers is restricted to academic sites. An interview with parents reported that they had no idea what their children access via internet. Teachers and students reported in the interview indicated that internet

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provide an alternative avenue for students to access educational materials. The findings imply that the respondents perceived that use of internet for educational matters did not negatively influence academic performance of the students.

The study further sought to determine respondents' perception on the extent to which the various infrastructures influenced the students' academic performance. The findings are presented in Table 3. The following key was used in the study, VGE represents Very Great Extent, GE represents Great Extent, NO represents No Opinion, SE represents Small Extent and NE represents No Extent.

Table 3. Perceived Influence of Home Infrastructure on Academic Performance

Statement	Response	Students		Parents		Teachers	
		F	%	F	%	F	%
Reading space/study room influence the students' academic performance	VGE	31	16.1	26	14.9	24	21.4
	GE	99	51.3	98	56.3	58	51.8
	NO	17	8.8	14	8.0	18	16.1
	SE	13	6.7	22	12.6	8	7.1
	NE	4	2.1	14	8.0	4	3.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of electricity at home influence the students' academic performance	VGE	10	5.2	34	19.5	20	17.9
	GE	60	31.1	92	52.9	62	55.4
	NO	84	43.5	32	18.4	20	17.9
	SE	20	10.4	12	6.9	6	5.4
	NE	19	9.8	4	2.3	4	3.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of internet facility at home influence the students' academic performance	VGE	7	3.6	2	1.1	16	14.3
	GE	20	10.4	36	20.7	92	82.1
	NO	97	50.3	118	67.8	2	1.8
	SE	38	19.7	14	8.0	2	1.8
	NE	31	16.1	4	2.3	0	0
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of a computer at home influence the students' academic performance	VGE	3	1.6	0	0	10	8.9
	GE	23	11.9	18	10.3	18	16.1
	NO	101	52.3	66	37.9	80	71.4
	SE	40	20.7	90	51.7	2	1.8
	NE	26	13.5	0	0	2	1.8
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of a television at home influence the students'	VGE	1	0.5	28	16.1	6	5.4

academic performance	GE	14	7.3	100	57.5	78	69.6
	NO	123	63.7	18	10.3	6	5.4
	SE	30	15.5	26	14.9	20	17.9
	NE	25	13.0	2	1.1	2	1.8
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of electronic communication facilities at home influence the students' academic performance	VGE	21	10.9	6	3.4	12	10.7
	GE	111	57.5	46	26.4	72	64.3
	NO	9	4.7	90	51.7	6	5.4
	SE	27	14.0	28	16.1	18	16.1
	NE	25	13.0	4	2.3	4	3.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of furniture at home influence the students' academic performance	VGE	22	11.4	2	1.1	2	1.8
	GE	123	63.7	10	5.7	18	16.1
	NO	7	3.6	100	57.5	82	73.2
	SE	19	9.8	60	34.5	6	5.4
	NE	22	11.4	2	1.1	4	3.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**
Availability of a library at home influence the students' academic performance	VGE	32	16.6	46	26.4	12	10.7
	GE	113	58.5	104	59.8	92	82.1
	NO	5	2.6	24	13.8	2	1.8
	SE	33	17.1	0	0	2	1.8
	NE	10	5.2	0	0	4	3.6
	Total	**193**	**100**	**174**	**100**	**112**	**100**

The findings show that most of all the categories of the respondents (51.8% teachers, 51.3% students and 56.3% parents) indicated that the reading space influenced the students' academic performance to a great extent. The respondents perceived that space influenced the academic performance of the students. The findings are in agreement with what the respondents reported during interview.

The findings also show that most (55.4%) of the teachers and 52.9% of the parents indicated that electricity influenced, to a great extent, the academic performance of the students. The result however show that most (43.5%) of the students had no opinion as to the extent to which electricity influenced their academic performance. This was because most homes had no electricity as established from most respondents during the interview.

On the perceived influence of internet facility, the results show that most (82.1%) of the teachers felt that it influenced the students' academic performance to a great extent. The findings however, show that most (50.3%) of the students and 67.8% of the parents had no opinion about the perceived influence of internet facilities on the academic performance of the students. The findings mean that

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only the teachers understood the importance of internet facilities on the students' academic performance. This could be attributed to the fact that teachers have more experience in such matters than the parents and the students.

The results of the study show that most (71.4%) of the teachers and 52.3% of the students had no opinion of the extent computers influenced the students' academic performance. The results further show that most (51.7%) of the parents perceived that availability of computers at home influenced academic performance of students to a small extent. The results therefore mean that most likely computers will not affect the academic performance of students.

The findings show that most (69.6%) of the teachers and 57.5% of the parents remarked that TV influenced to a great extent the academic performance of the students. The results however, show that most (63.7%) of the students had no opinion on the extent the TV influenced the academic performance of the students. The findings of the study therefore mean that the respondents' perception was that watching TV influenced the students' academic performance to a great extent.

As to the perception of the respondents on the extent to which electronic communication facilities influenced the students' academic performance, the results show that most (64.3%) of the teachers and 57.5% of the students indicated that the electronic communication facilities influenced the students' academic performance to a great extent. The results show that most (51.7%) of the parents had no opinion on the perceived influence of electronic communication facilities on academic performance.

According to all categories of respondents (82.1% of the teachers, 58.5% of the students and 59.8% of the parents), they perceived that the home library influenced the academic performance of the students to a great extent. The findings therefore mean that the home library is very important for the students' academic performance.

The phones were mainly used for playing games, chatting, browsing among others which had a negative perceived influence on the students' academic performance. The study established that most of the respondents felt that watching TV programmes during leisure time had no negative perceived influence on academic performance. These findings agree with by Nganda (2007) who found in his study that; television watching by pre-school children can be beneficial to them as long as the programs' contents are appropriate. There was no perceived influence of playing computer games on the students' academic performance, same as on watching DSTV. However, according to majority of the respondents (49.7% of the students, 64.4% of the parents and 58.9% of the teachers) the use of internet for education positively influenced the students' academic performance. The results show that the respondents perceived that using the internet for educational matters positively influenced academic performance of the students. This supported Kaya, Kesan and Izgiol (2012) findings that use of internet in teaching and learning enhances students' success.

The study findings revealed that the respondents perceived that the reading space influenced the students' academic performance. The study findings show that the teachers and the parents indicated that electricity influenced to a great extent the academic performance of the students. The results show

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that the teachers indicated that it influenced the students' academic performance to a great extent. The teachers underscored the importance of internet facilities on the students' academic performance. The results of the study show that computers were not perceived by respondents to have any influence on students' academic performance. The study findings also indicate that the teachers and the parents perceived that TV influenced to a great extent the academic performance of the students. The results are in support of the views of Hetsroni (2008) that television was addictive and the users would take long hours viewing the TV-between 2.5 to 3.5 hours a day which has a negative influence on their academic performance. The electronic communication facilities influenced the students' academic performance to a large extent. The respondents indicated that the home library influenced the academic performance of the students to a great extent.

4. Conclusions

Based on the results of this study, the following are the conclusions of this study:

1) Phone ownership and excessive use of phones by students negatively affect children's academic performance.

2) Television watching by pre-school children can be beneficial to them as long as the programs and contents are appropriate to their level.

3) Teachers and students reported that internet provides an alternative avenue for students to access educational materials.

4) Home library influenced the academic performance of the students to a great meaning that the home library is very important for the students' academic performance.

Recommendations

1) The student's possession and use of phones should be controlled to avoid time wastage and access of unnecessary materials.

2) Parents and teachers should supervise and monitor what their children access via internet, since this facility can be a good source of learning and useful information.

3) Parents should be encouraged to create home libraries since they influenced the academic performance of the students to a great extent.

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