

Research Article

Determinants of Viewing Kana Television Program on Students' Academic Performance in Jigjiga Town Preparatory School

Aychew Alemie Mekonen^{1,*} , Amare Mebrat Delie² , Ermyas Keefelegn³

¹Statistics Department, Science College, Jigjiga University, Jigjiga, Ethiopia

²Department of Public Health, College of Medicine and Health Sciences, Injibara University, Injibara, Ethiopia

³Statistics Department, Science College, Woldia University, Weldiya, Ethiopia

Abstract

Globalization gave rise to television, a significant source of instructional enrichment. It offers more comprehensive, advanced, and varied knowledge and instruction. Television has received a lot of flak for having a detrimental effect on secondary school pupils' academic achievement. Watching television could start to compete with studying time and eventually lead to poorer academic achievement. In this study, our aim was to identify the determinants of viewing Kana television programs on academic performance. To meet the objective, of the 1658 students, 138 were selected as a sample by using stratified random sampling. We gathered information from the sample of students by using primary and secondary data collection methods. Multiple linear regressions were used for data analysis, considering academic performance (the average mark after watching Kana TV) as the response variable. According to the descriptive statistic, 46.4% of students are males, and the remaining 53.6% are females because the total population of females is higher than males. 51.4% of students live in urban areas, and the remaining 48.6% live in rural area. 60.9% of students have access of satellite television and 39.1% of students have no access to satellite television. The major significant factors that affect the academic performance of students are age, religion, income, parent's follow-up (father's follow-up), access to satellite television, addiction to Kana television programs, and time spent.

Keywords

Academic Performance of Students, Kana Television, Multiple Linear Regressions

1. Introduction

Globalization gave rise to television, a vital source of educational enrichment [1].

The media industry has seen significant technical growth in the twenty-first century. All mass media platforms, includ-

ing television, are essential and unavoidable components that provide people with news, entertainment, and education.

These days, one can watch television on the web, on a cell phone, or with a little pocket TV. Because of their seemingly

*Corresponding author: aychewalemie@gmail.com (Aychew Alemie Mekonen)

Received: 3 March 2024; **Accepted:** 8 April 2024; **Published:** 29 April 2024



unrestricted access to the many types of materials, young children's usage of it in particular has raised discussions and worries among many scholars, since it may have an impact on their learning, behavior, growth, and health [2].

It offers more comprehensive, advanced, and varied knowledge and instruction. It provides amusement as well. This contributed to the nation's film industry's boom. Consequently, there was a noticeable surge in the number of moviegoers as the motion picture industry showed indications of becoming a major source of entertainment. It is generally acknowledged that, among other information sources, television has emerged as the source of the most widely disseminated pictures and messages in history. Because of this, students consume more media overall, with watching television, movies, or videos accounting for more than half of this time [3]. As a result, television was seen as a distraction during the teaching and learning process, and secondary school pupils now regularly share this perception [4].

Mass media includes publications including newspapers, periodicals, books, radio, television, movies, and other forms of communication that reach a large audience without requiring a personal connection between the sender and the recipient. Preschoolers who watch television perform worse academically and have a harder time picking up new languages [5].

Parents have reportedly expressed concern about their children's academic performance due to their withdrawal from academic pursuits, specifically not doing their homework, not studying, and receiving subpar exam results [6].

Actually, there has been a lot of criticism directed at television for its detrimental effects on secondary school students' academic performance. Watching television may start to compete with studying time and ultimately lead to worse academic achievement [7].

Too much time spending on television has adverse effects on School performance [8].

Due to viewers' reliance on foreign-based satellite television programming, the availability of satellite television in Ethiopia may have negatively impacted adolescent viewers' social interactions [9]. Schiller affirms that "watching foreign television can change one's values, and importing programs is importing lifestyles" [10].

Through exposure to satellite television, the research intends to define the time that youth allocate toward viewing satellite television, especially Kana programs. It is an Ethiopian general entertainment, free-to-air, satellite television channel that bringing international standard programming to Ethiopia [11].

2. Data and Methodology

2.1. Data

Primary as well as secondary gathering methods were used to get the data for this investigation. Gathering initial data is

the procedure by which we obtain original data from original sources using a questionnaire (a self-report tool designed to collect data about variables). Additionally, we use a secondary data gathering approach to establish the sample size by obtaining data from the register.

Sampling Design

Sampling Technique is a method of selecting sample from an entire population. For this study, we have used a stratified random sampling method. Since the nature of our target population forced us to use it in order to increase the prevalence of findings, thus, we used the classes as strata [12].

2.2. Methodology

In this study, the variable academic performance (average mark after watching Kana TV) is a continuous variable. When the response variable is continuous, it is appropriate to use multiple linear regression models to describe the relationship between the outcome variable and a set of predictor variables.

2.2.1. Multiple Linear Regression Analysis

Multiple regressions are a type of regression in which we have one dependent and more than two predictor variables. This model is used to study relationships among variables, and the model is given by:

$$Y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + \epsilon_i \quad (1)$$

Where: β_0 = intercept

$\beta_1, \beta_2, \dots, \beta_k$ is the coefficient of $x_1, x_2, x_3, \dots, x_k$, respectively.

Y_i = response variable [13].

Assumptions of Multiple Linear Regression Analysis

The assumption of multiple linear regression analysis is as follows: the response variable must be continuous.

There is a linear relationship between independent and dependent variables.

With an average of zero and constant variance, the error term has a normal distribution.

There is not a perfect linear correlation between the explanatory factors.

There is no relationship between the incorrect terms [14].

2.2.2. Model Diagnostics (Adequacy)

1. Assessing Error Terms' Normality

The normally distributed assumption is verified using the normal probability plot. This indicates that the standard deviation is one and that the error terms have a normal distribution with an average of zero.

2. Standardized Linearity Checking

The linear probability that they provide for the predictor variables is linearly related to the dependent variable, as demonstrated by the scatter plot of the dependent variables against the standardized predicted variable, which is used to

verify the linearity assumption of the MLR model.

3. Assessing Homoscedasticity

The variance of the error is constant. Residuals cannot vary for lower or higher values of X (i.e., fitted values of Y since $Y=X\hat{\beta}$). a Scatter plot of the standardized residual against the standardized predictor is used to check the dependency of the standardized residual on repressors.

4. Multicollinearity

VIF used to check multicollinearity. It is the relationship between regressors. Its diagnosis is VIF, where $VIF(B_j) = 1 / (1 - R^2_k)$, R^2_k is the coefficient of determination of the auxiliary regression. If $VIF(B_j) = [1, 10]$, there is no multicollinearity, but VIF (Bj) out of the range indicates problem with it [15].

3. Results and Discussion

3.1. Descriptive Statistics

Table 1 show that the average time spent by respondents watching Kana television programs was 1.27 hours or one hour and 27 minutes per day. The average marks of students before starting the kana TV program and after starting the Kana TV program was 77.133 and 74.41, with a standard deviation of 8.7893 and 9.422 respectively. The minimum and maximum ages of students in this school were 14 and 21 respectively. The minimum and maximum time spent on Kana television were 1 and 4 hours respectively.

Table 1. Descriptive statistics for continuous variables.

Statistics	age	time spent ⁺	Mark	
			Before [*]	After ^{**}
Mean	16.67	1.27	77.133	74.41
Std. Deviation	1.457	.986	8.7893	9.422
Minimum	14	1	58.0	45
Maximum	21	4	97.7	93.4

+ Time spent on Kana Television

^{*} Mark of students before Kana TV program starts and

^{**} Mark of students after Kana TV program starts

Table 2. Descriptive statistics for categorical variables.

Variables		Frequency	Percent (%)
Sex	Male	64	46.4
	Female	74	53.6
Religion	Muslim	33	23.9
	Orthodox	73	52.9
	Catholic	21	15.2
	Protestant	11	8.0
Father Occupation	Merchant	49	35.5
	Government	39	28.3
	Farmer	42	30.4
	Daily labor	6	4.3
Mother Occupation	Other	2	1.4
	Merchant	43	31.2
	Government	17	12.3

Variables		Frequency	Percent (%)
Monthly Income	House wife	78	56.5
	<=1000	47	34.1
	1000_2500	57	41.3
	>=2600	34	24.6
Father follow up	Yes	57	41.3
	No	81	58.7
Mother follow up	Yes	48	34.8
	No	90	65.2
Residence	Urban	71	51.4
	Rural	67	48.6
	9 th	62	44.9
Grade	10 th	51	37.0
	11 th	10	7.2
	12 th	15	10.9
	Yes	84	60.9
Satellite television access	No	54	39.1

Table 2 shows that 46.4% of students are males and the remaining 53.6% are females because the total population of females is higher than that of males. 23.9% of students follow the Muslim religion, 52.9% are orthodox, 15.2% are Catholic, and the remaining 8.0% of the students follow the Protestant religion. 34.1% of the students families have less than or equal to 1000 total family monthly income, 41.3% have between 1100 and 2500 total monthly income, and 24.6% of students have greater than or equal to 2600 total monthly

income. 51.4% of students live in urban areas, and the remaining 48.6% live in rural areas. Table 2 revealed that 44.9% of students are in grade 9th, 37.0% are in grade 10th, 7.2% are in grade 11th, and the remaining 10.9 percent of students are in grade 12th. 60.9% of students have access to satellite television, and 39.1% of students have no access to satellite television. 53.6% of students are addicted to Kana television programs, and 46.4 percent are not addicted to television programs.

3.2. Multiple Linear Regressions Analysis

Table 3. Model summary.

Model	R	R Square	Adjusted R ²	Std. Error of the Estimate
1	.934 ^a	.872	.834	3.787

Table 4. The overall test of the model (ANOVA).

ANOVA ^b						
Model		Sum of Square	Degree of freedom	Mean Square	F	Sig.
1	Regression	7977.63	24	332.40	23.17	.00 ^a

ANOVA ^b					
Model	Sum of Square	Degree of freedom	Mean Square	F	Sig.
Residual	1175.97	82	14.34		
Total	9153.60	106			

The model summary from table 3 shows that $R^2 = 0.872$, which indicates that 87.2% of the variation (change) in the response variable (the average mark after starting the Kana TV program) is explained by the explanatory variables, while 12.8% of the outcome variable is influenced by the other explanatory variables that are not included in the study. Therefore, the model fits the data well.

Over all, hypothesis testing for coefficients $H_0: \beta_i = \beta_j = 0$ Vs H_1 : Independent variables have at least one coefficient that deviates from zero. Interpretation: As we know from the ANOVA table, the overall test of the model, value = 0.000, is less than p value of 0.05. Therefore, reject H_0 , so the model is significant. This is an indication of the goodness of the model. It can be said that the model fit the model well.

Table 5. Model of multiple linear regression coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	23.660	11.792		2.006	.048
sex of respondents	.437	.808	.023	.541	.590
age of respondents	-1.309	.514	-.206	-2.547	.013
Muslim	.265	1.005	.012	.264	.793
Catholic	-.510	1.120	-.021	-.455	.650
Protestant	-3.375	1.463	-.101	-2.307	.024
Merchant (Father)	-5.398	3.034	-.286	-1.779	.079
government employed (Father)	-.203	.932	-.011	-.218	.828
Farmer (Father)	-4.660	3.095	-.207	-1.506	.136
daily labor (Father)	-6.038	3.853	-.124	-1.567	.121
Merchant (Mother)	.518	.879	.026	.589	.557
government employed (Mother)	-2.349	1.316	-.088	-1.785	.078
less than or equal to 1000	2.312	1.045	.119	2.212	.030
between 1100 and 2500	.386	.973	.020	.397	.693
respondents father follow-up	-6.733	3.213	-.342	-2.096	.039
respondents mother follow-up	-1.144	.875	-.059	-1.307	.195
residence of respondents	-1.098	.959	-.059	-1.145	.255
grade nine	-3.451	2.641	-.185	-1.307	.195
grade ten	-.710	2.025	-.037	-.351	.727
grade eleven	1.733	2.118	.052	.818	.416
access of satellite television for respondents	2.178	.857	.117	2.541	.013
addiction of respondents on kana program	2.810	1.096	.150	2.564	.012

Model	Unstandardized	Coeffi-	Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
time spent on kana television for respondents	-1.164	.420	-.124	-2.771	.007
peer pressure of individuals on respondents	2.183	1.158	.111	1.884	.063

From the above SPSS output table 5, it shows that sex, parents occupation, parent follow-up (mothers follow-up), residence, grade level, and peer pressure were not significant, because all p-values were higher than the significance level ($\alpha=0.05$), but age, religion, income, parents follow-up (fathers follow-up), access to satellite television, addiction to Kana television programs, and time spent were significant since all p-values were less than the level of significance ($\alpha=0.05$).

$$\hat{y}=\beta_0+\beta_2X_1+\beta_3D_2+\beta_5D_4+\beta_6D_{51}+\beta_9D_8+\beta_{10}D_9+\beta_{11}X_2+\varepsilon$$

$$\hat{y}=23.660-1.309X_1-3.375D_2+2.312D_4-6.733D_{51}+2.178D_8+2.810D_9-1.164X_2+\varepsilon$$

4. Conclusion and Recommendation

The results of the data analysis show that the most important factors impact the academic performance of students. These factors are age, religion, income, parent follow-up (fathers follow-up), access to satellite television, addiction of individuals to Kana television programs, and time spent, but sex, parent occupation, parent follow-up (mothers follow-up), residence, grade level, and peer pressure are insignificant with academic performance.

The students who spent their time on Kana television programs are not satisfied with their average marks, and they are addicted to Kana. Their daily interest in satellite television access increased rather than studying their course because the majority of respondents had satellite television access with Kana and had knowledge of viewing Kana television programs. Thus, their average marks were affected, and their average marks decreased after they had been watching Kana television programs. This study suggests that in order to decrease the amount of time kids spend watching television; teachers must give them enough homework to keep them occupied during downtime. Schools ought to guide parents on how to monitor and look into their children's media consumption. Because movies are able to present events that look real and pertinent to every detail in a way that is suitable for teaching, the government must completely support this course.

Abbreviations

TV: Television

ANOVA: Analysis of variance

SPSS: Statistical Package for Social Science

Funding

The authors received no financial support for this study.

Conflict of Interests

The authors declare no conflicts of interest.

References

- [1] Naigles S, Mayeaux T. The impact of television and video entertainment n student achievement in reading and writing. *African Journal of Educational Research*. 2011, 22(1), 56-69.
- [2] Ofosu-Brako, V. Relationship between parenting styles, television viewing habits and academic performance of students in Ga-East Municipality, Ghana. *J Adv Educ Philos*. 2022, 6(5), 274-280.
- [3] Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. Growing up with television: The cultivation perspective. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research*. 1994, pp. 17-41
- [4] Roberts DF. Kids & Media@ the New Millennium: A Kaiser Family Foundation Report. A Comprehensive National Analysis of Children's Media Use. Executive Summary. 1999.
- [5] Fehintola J, Audu U. Impact of home video watch on the academic performance of students in selected public secondary school in Ido Iga of Ibadan metropolis, Nigeria. *Academic Research International*. 2012; 3(2): 270.
- [6] Yasin B, Kebede Y. Parents' concerns about the negative effects of television viewing on children's behavior and school performance in Addis Ababa, Ethiopia. *Bahir Dar Journal of Education*. 2023 Aug 30; 23(3): 5-22.
- [7] Thomas WL. *Sociology: the study of human relationships*: Holt, Rinehart and Winston; 2003.
- [8] Dhiman DB. Negative Impact of Television Viewing on Academic Achievements of Students: A Case Study of Subhash Nagar (September 13, 2022). Available at SSRN 4218010.

- [9] Ahinda AA, Murundu ZO, Okwara MO, Odongo BC, Okutoyi J. Effects of television on academic performance and languages acquisition of pre-school children. 2011.
- [10] Rideout VJ, Vandewater EA, Wartella EA. Zero to six: Electronic media in the lives of infants, toddlers and preschoolers. North Western Scholars. 2003, p. 63.
- [11] Schiller HI. Communication and Cultural Domination. New York: ME Sharpe. Inc/White Plains. 1976.
- [12] Cochran WG. Sampling techniques: john wiley & sons; 1977.
- [13] Poole, M. A., & O'Farrell, P. N. (1971). The assumptions of the linear regression model. *Transactions of the Institute of British Geographers*, 1971, pp. 145-158.
- [14] Osborne, J. W., & Waters, E. Four assumptions of multiple regressions that researchers should always test. *Practical assessment, research, and evaluation*. 2019, 8(1), 2.
- [15] Montgomery DC, Peck EA, Vining GG. Introduction to linear regression analysis: John Wiley & Sons; 2021.