

Family Influence on Students' Choice of Physics as an Examinable Subject in Secondary Schools in Meru South Sub-County

Kimeli Jepkorir Bornace & Ruth Mutunge Mwanzia

Department of Education

Chuka University

Chuka, Kenya

Abstract

The importance of physics cannot be over looked by humanity. The purpose of this study was to establish the family influence on the choice of Physics subject by students as an examinable subject in secondary schools in Meru South Sub-County. The study was significant to the curriculum reviewers like Kenyan institute of curriculum Development (KICD) who could use the results of this study to come up with a more student friendly curriculum. A number of challenges including school policies were a limitation and that the focus was on form three students because several factors discussed in this study have influenced them to choose or not to choose physics faced the study. This limited generalization of the findings to other classes. The study assumed that all students were taught physics and were given equal chance to choose physics at form three at will and Physics was taught as a compulsory subject in both form one and two. The study adopted descriptive survey research design that made use of questionnaires, interviews and observation checklist. The sample size consisted of 209 respondents comprising of 183 students and 26 teachers, from a target population of 610 students and 87 physics teachers. They were selected through Stratified and simple random sampling method from five area cluster zones; this formed 30% of the target population. Data was collected using questionnaires for the form three students, an interview schedule for teachers of Physics and an observation checklist. Data collected was presented in form of tables, frequencies and percentages. Statistical Package analyzed data for Social Scientists (SPSS).

Keywords: Physics, Family influence, Examinable subject, student

1. Introduction

One of the overriding United Nations (UN) Millennium Development Goals (MDG) is the elimination of illiteracy among the residence of developing countries by the year 2015 as education is vital to development. Education is increasing gaining prominence as one of the more important subjects in Africa in her endeavor to escape illiteracy and poverty (UNESCO, 2004). Many countries of the world, African countries included have invested substantial amount of money in their budget to enhance attainment of education to the citizens (Kyalo, 2006). During the curriculum development process in Kenya, various measures were put in place which included curriculum diversification and abolition of school fees in primary schools to make education affordable. In its efforts to reform the education system the government set up various commission and working parties to review education system which made recommendation for changes to make education relevant to the country (Abagi and Olweya, 1999). Mbithe (2012) notes that if we outfit our students with skills such as critical thinking, creativity and courage they were ready for a better life in a globally connected world. One way of doing this is through the teaching of physics in secondary schools. Physics endeavors to understand the underlying laws governing our universe. By understanding those laws, we can better interact with and harness our environment. To gain perspective into how much physics has contributed to our livelihoods. Pravica (2005) considers the following as miracles from physicists; alternating current, hydroelectric power, electric motors, radio, microwave, ovens, satellites, radar, modern rocketry, nuclear magnetic resonance, magnetic resonance imaging, x-rays, lasers, transistors, light emitting diodes, oscilloscopes, television, holography and the world web among many others. There is a deep symbiosis between discovery in physics and new technology. We all benefit from the priceless contributions of physics. Contributions from physics generate many trillions of dollars for the world economy and aid our existence immeasurably.

Lyons (2004) in his research in Australia on choosing physical science noted that students would choose physical science due to such cues as parents positive comments, positive behavior and personal histories about the science. Lyons (2004) found out some students saw the high status of their parents credentials or occupation as representing what could be achieved through University study. When parents held positive discussions of science related issues, helping students with science projects and home work, sharing views of science, TV documentaries helped such students to choose science subjects even higher levels. Lyons (2004) noted that parental use of science language encouragement and good parental child relationship also motivated students. Parents occupations such as medicine, engineering science teaching etc, and parent's financial stability was the factor that motivates students. Springate et al (2008) observes that family influence is a medium influence factors, images of scientists and the work they do, is also acts as a medium influence factor.

Vision 2030 on science, technology and innovation is to intensify its application, to raise its productivity and efficiency level across the country in accelerating economic development in all the newly industrializing country. The aim of the vision is to transform Kenya into a newly industrializing, middle income country providing a high quality life to all its citizens by the year 2030 (Kenya Vision 2030). To realize this vision, educational vision of raising the quality and relevance of education has to be fulfilled. For Kenya to achieve its vision 2030 of industrialization, the issue of relevance should be geared towards fundamental subjects in its curriculum to its young generation. One of the relevant subjects in this case is physics. Physics is a gate keeper for technology (Kale, 2005). Physics is a fundamental subject in our society and a major ingredient of science and technology (Taylor, 1984). Physics as a science has the reputation of being a difficult subject to master, but like many challenging things in life, it leads to many satisfying rewards to the individuals and the nation in question.

In Kenya the KNEC examination report (2004-2008) indicates that the overall performance of students at KCSE has been on improving trend although it has raised deep concern over the low enrolment in physics. Considering the year 2007 only 54645(28.20%) candidates sat the KCSE examination out of the total number of candidates of 193 823 students. Physics being a fundamental subject in our society (Taylor, 1984) and a major ingredient of science and technology, needs urgent readdress in terms of enrolment. There is need to investigate what factors influences students choice of physics as an examination subject in secondary schools, leading to low enrolment and possibly try to improve on those factors early enough to increase the enrolment in the future.

2. Study Objective

The objective of the study was to investigate the family influence on students' choice of physics as an examinable subject in secondary schools at Meru South Sub-County, Tharaka Nithi County.

3. Methodology

The study adopted the descriptive survey research design. The target population comprised of all 44 secondary schools. There were 37 public schools and 7 private schools. The accessible population was all the form three students in the sampled schools and teachers teaching physics. Form three students were chosen because they had just chosen examination subjects for their KCSE. The researcher employed stratified sampling technique. Simple random sampling technique was also employed to sample schools from each zone because it ensured that each member of the target population has equal and independent chance of being included in the study sample. Questionnaires, interview schedule and observation check list were used. The data was collected with approval from the National Commission for Science, Technology and Innovation. The obtained data was coded and entered into the computer for analysis using SPSS version 20.0. The data was analyzed using a few statistics such as percentages and frequencies.

4. Results and Discussions

The following were obtained:

4.1 Demographic Characteristics

The data analysis revealed that male students who participated in the study were 53% while the females were 47%. Teachers who participated in the study were 44.4% male and 55.6 female. The age of the students ranged between 15 years and 20 years with majority; 42.3% being 17 years old. Most teachers according to the findings were between the ages of 40-49 years.

The classes were fairly large with 66.7% of students being in classes of between 40-49 students. This implies that teachers cannot give individual attention to students thus affecting their academic performance negatively.

Concerning the adequacy of teachers; 74.4% of students and 55.6% of teachers felt that secondary schools in Meru South Sub County had adequate number of teachers. This suggests that some schools are understaffed.

4.2 Family Influence on Choice of Physics

This objective was to determine how family influences students' choice of physics as an examinable subject in secondary schools. This was measured by the following variables father and mother advised me to do it, my brother /sister pursuing a physics course, to be like my uncle/aunt in future. Likert scale was used for answers (1 =strongly agree 2 =Agreed 3=Undecided 4= Disagreed5= Strongly Disagree.) These questions were analyzed by use of frequencies and percentages as shown in Table1.

Table1. Family Influences on Choice of Physics

Statement	SA		A		U		D		SD	
	F	%	F	%	F	%	F	%	F	%
Father/mother/guardian advised me	16	8.7	19	10.4	5	2.7	63	34.4	80	43.7
Brother/sisters pursuing physics	19	10.4	17	10.9	0	0.00	53	29	94	51.4
To be like my uncle/aunt	8	4.4	23	12.6	27	14.8	55	30.1	70	38
Father/mother did physics	13	7.1	28	15.3	25	13.7	48	26.2	69	37.7

Students were asked whether they chose Physics because their father/mother/guardian advised them to do the subject. It was established that 80(43.7%) respondents strongly disagreed and 63(34.4%) disagreed that father/mother/guardian influenced them to choose physics. This shows that majority 78.1% of the students were not advised by either mother/father/guardian to take physics. 16(8.7%) strongly agreed and 19(10.4%) agreed. This shows that only 19.3% were advised by father/mother/guardian. It is very clear that most parents did not advise their children on this subject. The findings agree with Lyons (2004) in his research in Australia on choosing physical science noted that students would chose physical science due to such cues as parents positive comments, positive behavior and personal histories about the science.

Students were asked if they chose physics because their brother or sister was pursuing physics course in College, from the findings in the table above, it was established that 33(29%) respondent disagreed and 94(51.4%) respondent strongly disagreed. This implies that majority of the respondents 127(80.4%) did not chose the subject because brother or sister pursuing a physics course in college. A very small number 19(10.4%) agree, this implies that there could be a very small number of brother/sister pursuing physics courses in college. Any advice given by this group is also limited. The research did not limit itself to the immediate family alone; it went head to find out how the extended family influenced the students in choice of the subject. Students were therefore asked if they chose physics because they wanted to be like their uncle/aunt in future who pursuit physics.

From Table 4.4 above 70(38.3%) respondents strongly disagreed and 55(30.1%) respondents disagreed. This implies that 125(68.4%) of the study population did not choose physics because they wanted to be like their uncle or aunt in future. This implies uncle/aunt had almost no influence in the choice of physic. On the other hand 8(4.4%) strongly agreed and 23(12.6%) agreed. This means 31(17%) were influenced to chose physics. Students were also asked if they chose physics because they wanted to be like their father/mother who did physics and was prospering. From the table above it is very clear that 48 (26.2 %) respondents disagreed and 69 (37.7%) respondents strongly disagreed. This implies that 117 (65.9%) respondents did not choose physic to be like their father or mother. It also indicates that most parents are not physics' and could be had no idea of the subject.13 (7.1%) strongly agreed and 26 (15.3%) agreed that they chose physic to be like their father or mother. This implies that 39 (22.4%) of the respondents had an influence on the fact that their father or mother were in this field could be physics teachers or engineers and were role model to their children. Lyons (2004) found out that some students saw the high status of their parents 'credentials or occupation as representing what could be achieved through University study. This concurs with Bronfenbrenner (1979) theory which states that family, religious institutions; neighborhood influences an individual's decisions in life. Bandura (1977) states that people learn through other people's behavior, attitude and outcomes of those behaviors. In this research students learn from their parents, aunts, uncle if they talk positively and encourage the always the chose to take physics.

4.3 Teachers Interview findings on Family influence

Teachers were asked how family influenced students' choice of physics, most of them said that if family members are educated and talk positively about physics, then a student from such background would choose physics. This depends on whether family members who come in contact with the student are; science based in terms of career for example engineers such as a parent or guardian would definitely advise a student to choose physics. Therefore the study established that family had very little influence on students' choice of physics in secondary school. The students' family failed to provide advice and encouragement. There were no Physics role models in the family and therefore family had insignificant influence on the students' choice of physics. When family members talk positively about the subject, encourage, and give advice to students, it builds student confidence and attitude towards the subject. In conclusion the study established that the students' family failed to provide advice and encouragement. The students also lacked role models in the family and therefore family had insignificant influence on the students' choice of physics. Family members need to talk positively about the subject, encourage, and give advice to students to build student confidence and attitude towards the subject.

4.4 Recommendations

Family members should learn to talk positively about the subject, encourage, and give advice to students, to build the students confidence and attitude towards the subject. A powerful awareness campaign should be mounted to enlighten parents on their roles in promoting physics.

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