THE RELATIONSHIP BETWEEN TECHNICAL SUBJECTS AND TYPE OF SELF-EMPLOYMENT ENGAGED IN BY SECONDARY SCHOOL GRADUATES IN KENYA

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ABSTRACT

Provision of technical subjects in secondary schools, in part, is aimed at assisting the graduates who miss out on higher education to easily transit to the world of work and more so in self-employment. This study thus sought to determine whether there is a relationship between the technical subjects and the type of self-employment engaged in by secondary school graduates (SSG's) in Kenya. The study used an exploratory-descriptive survey research design. Chi-square test was therefore used to determine the relationship on a sample of 393 SSG's of 2009-2011 in self-employment in Mombasa and Bungoma counties. Probability proportional to size (PPS) sampling technique was used to determine the sample size per county, subject and gender. We established that there is a significant difference between the technical subjects studied by the SSG's and the type of businesses they are engaged in. We recommend that technical subjects be made compulsory in schools and each student should be encouraged to produce at least one marketable product or service, and such product should be put up for exhibition organized by the ministry of education in each district. This will further create motivation for entrepreneurship skill acquisition among the SSG's.

Key words: *Entrepreneurial skills; Technical subjects; Vocational education; Secondary school graduates; Self-employment*

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Introduction

According to Maigida, Saba and Namkere (2013) it was no news that the world had become private sector driven, and economic prosperity in the 21st Century requires the possession of entrepreneurial skills to function. The youth need exposure in practical entrepreneurial work experience in order to be proficient in their chosen career and be useful to themselves and the society. Thus entrepreneurship which was a planned effort undertaken by an individual or individuals, institutions or agencies to develop the required competencies in people could easily be addressed through vocational options. Competencies of individual's entrepreneurial skill in Technical and Vocational Education and Training (TVET) were designed to lead the beneficiaries' to self-employment, economic self-sufficiency, and employment generation through short or long-term training. This had lead African countries to realize that training in TVET was necessary to alleviate poverty through skills acquisition.

TVET provided various opportunities for discovering and developing the individual's potentials for work. Accordingly, Oziengbe (2009) opined that TVET had a broadening effect, which motivated learners to be more exploratory, realise their capability and develop their potentials for success in the workplace. In TVET, the youth undoubted had the opportunity of being productive and become useful to themselves and the society.

According to Ngerechi (2003), Technical, Industrial, Vocational Education and Training (TIVET) in Kenya had two major roles: to provide training opportunities to the increasing number of school leavers to acquire skills and advance their careers; and to ensure adequate supply of skilled labour needed in various sectors and at various levels of the economy. According to Simiyu (2001) technical and vocational education was the foundation for the development of effective and interactive skills in learners, and perhaps the only avenue for learners to access technical and vocational experience.

A study conducted by King and McGrath (2002) observed that a majority of the lot carrying out micro and small enterprises in Kenya were not quite well equipped in terms of education and skills. The study suggested that those with more education and training were more likely to be successful in the Small and Micro Enterprise (SME) sector. Wanjohi and Mugure, (2008) also

observed that for small businesses to do well in Kenya, people needed to be well informed in terms of skills and management. From their study it could be deduced that business owners were born and not made, and only those with increased general education flourished more in their businesses.

Lauglo and Narman (1987) observed that research had not borne out labour market justification for vocational subjects. In addition they claimed that no study had shown that vocationalization of school curriculum which affected a minor proportion of the students' gave them an advantage in finding work (let alone self- employment) within the first few years after leaving school, particularly under severely depressed labour market conditions. Exposure to vocational subjects may enhance interest in the types of work for which these subjects were broadly preparatory; however, tracer studies had failed to show a positive impact on actual access to work after students left school.

Previous research studies showed that there was a significant relationship between entrepreneurship education and career intention. For example, a study by Kolvereid and Moen (1997) showed that students with a major in entrepreneurship had a higher intention to engage as entrepreneurs and were likely to initiate business. Another study by Noel (2001) confirmed that students who graduated in entrepreneurship reached higher scores in entrepreneurial intention and entrepreneurial self-efficacy than students who graduated in other disciplines.

Weihe and Reich (1993) conducted an international study of entrepreneurial interest among business student and found that 34.3% of those interviewed had an unreserved interest in self -employment. The study found the highest number of students already self-employed, 6%, was in America. Similarly, Tkachev and Kolvereid (1999) findings showed that the self-employment intentions among students could be increased through Entrepreneurship Training Programme (ETP). Scott and Twomey (1988), in their study, collected data from English students and reported that 25 percent had a business idea and 41 percent aspired to self-employment.

A study by Kikechi, Owano, Ayodo and Epari (2013) observe that the odds ratio of a secondary school graduate starting a business from the entrepreneurial skills acquired while at school

increase by approximately three times if they acquired business planning skills from the technical subjects. On the other hand Sarasvathy (2001) listed management skills as one of the three factors that affect entrepreneurial performance apart from knowledge, relationships and social networks. Richter and Kemter (2000) examined the factors that determined the success of small businesses. They found that having the ability and competency to control and plan the whole business was an important management skill for business success. This study therefore sought to determine the relationship between the technical subjects and the type of self-employment engaged in by SSG's in Kenya.

Methodology

Research Design

The study utilized an exploratory-descriptive survey design. Nieswiadomy (2008) observed that exploratory research design is used when there is limited knowledge in the topic under study. Descriptive survey research design was also chosen because it involves collecting data in order to test the hypotheses or answering questions concerning the current status of the subjects of the study (Kerlinger, 2000; Cohen and Manion, 1994; Gay, 1992). They further note that the design seeks to identify the nature of factors involved in a given situation, determine the degree in which they exist and discover the links that exist between them. The research design was relevant in this study because it aided the researcher in determining the relationship between the technical subjects and the type of self-employment engaged in by SSG's. The study was carried out in Mombasa and Bungoma counties in Kenya.

The sample size and sampling procedure

In an ideal situation, data should have been collected from the whole target population in the two counties - Mombasa and Bungoma. But since the population was too large and scattered it was prohibitively expensive to use the whole population in the study. It was also not necessary and practical to make a list of the entire population. Under these circumstances, using Krejcie and Morgan (1970) table for determining sample sizes from any given population, a sample of 375 SSG's were selected from a target population and 14,590 SSG's who sat for their Kenya Certificate of Secondary Education (KCSE) in the years 2009-2011 in technical subjects. The

sample size was increased by five percent, hence 393, to take care of any questionnaire that would have gotten lost. Probability proportional to size (PPS) sampling technique was then used to determine the sample size per County, subject and gender for the SSG's. Thus the sub sample proportions for the SSG's by gender and subjects were as shown in the Table 1. Snowball sampling techniques was used to trace the respondents.

Table 1: Study sample size of secondary school graduates per county and gender

Category	Study Population				Total
	Bungoma County		Mombasa County		
	Male	Female	Male	Female	
secondary school graduates	173	169	27	24	393

Data collection instruments

The instrument was administered to the respondents by the researcher and two research assistants that were employed by the researcher, one from each of the two counties- Bungoma and Mombasa. A total of 393 copies of the questionnaire were administered. Observation technique was also used to collect data whenever they visited the business owners.

Results

The data analysis and results were presented with special reference to the research objective. Frequency distributions, percentages, measures of central tendency and Chi-square were used to determine the relationship between the technical subjects and the type of self-employment engaged in by SSG's. The level of significance in the inferential statistics was set at $\alpha = 0.05$, which is the most commonly used level in behavioural science studies (Allen & Yen, 2002).

The relationship between technical subjects and the self-employment engaged in by the secondary school graduates

The objective of the study hypothesized that there was no significant relationship between the type of business engaged in and the technical subject pursued by the SSG's while in school. Thus in order to achieve this objective the SSG's in the two counties (Mombasa and Bungoma) were requested to state the type of business they were engaged in and the technical subject they pursued while in secondary school.

(i)   Technical subject engaged in by secondary school graduates

Table 2 presents the frequencies and percentages of the responses in the two counties on the type of technical subject pursued by the SSG's to observe their distribution in the sample before running a chi-square test.

Table 2: Secondary school graduates choice of technical subject by county

Technical subject	Mombasa		Bungoma	
	Frequency	Percentage	Frequency	Percentage
Home science	20	31.75	65	19.7
Art and design	5	7.94	32	9.7
Agriculture	7	11.11	170	51.52
Woodwork	7	11.11	11	3.33
Metal work	3	4.76	2	0.61
Building construction	1	1.59	15	4.55
Power mechanics	1	1.59	1	0.3
Electricity	1	1.59	4	1.21
Drawing and design	7	11.11	1	0.3
Computer studies	11	17.45	29	8.78
Total	63	100.0	330	100.0

(ii)   Type of business engaged in by secondary school graduates

Table 3 shows that a substantial number of the SSG's (40.30%) in Bungoma County are engaged in agri-business. This might be because the county's economy leans towards agriculture and thus most of the students take agriculture in secondary school.

Table 3: Secondary school graduates response on the type of business engaged in

Type of business	Bungoma County		Mombasa County		Total	
	Freq.	%	Freq.	%	Freq.	%
Agri-business	133	40.3	10	15.87	143	36.39
Food processing	84	25.45	19	30.16	103	26.21
Building Construction	45	13.64	7	11.11	52	13.23
Carpentry	11	3.33	8	12.7	19	4.83
Motor vehicle mechanics	25	7.58	3	4.76	28	7.12

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Metal work	5	1.52	5	7.94	10	2.54
Leather work	19	5.76	5	7.94	24	6.11
other businesses	8	2.42	6	9.52	14	3.56
Total	330	100	63	100	393	100

Note: Freq. = Frequency, % = Percentage

Very few SSG's in the county took carpentry (3.33%) and metal work (1.52%) while at school. This may be due to Bungoma being a rural county with little connectivity to electricity that is needed to run workshops. From the observations made there were others who were engaged in businesses such as selling of sand at the market centres after buying it from the river banks, brick making, repairing of bicycles and motor cycles, running barber shop among others.

It can also be observed in Table 3 that many of the SSG's (30.16%) in Mombasa County engaged in food processing related self-employment. Some of them also engaged in agri-business (15.87%), leather work (7.94%), carpentry (12.7%) and metal work (7.94%). From the observations made by the research assistants many of the SSG's in Mombasa County who were engaged in agri-business mostly reared chicken and rabbits. Those who had other businesses included operating a shop; cyber café; selling of second hand clothes and shoes- popularly known as 'mitumba' in Kenya, among others.

Descriptive statistics on the type of subjects and businesses engaged in

Table 4 presents the mean, standard error (mean), standard deviation (SD), variance and the range of the two variables (type of subject and type of business engaged in).

Table 4: Descriptive statistics for variables used in the analysis

Variable	Mean	Se (mean)	SD	Variance	N	Range	Min	Max
Subject	3.63	0.14	2.72	7.39	393	9	1	10
Type of business	5.84	0.88	17.44	304.10	393	95	1	96

Note: Se = Standard error; SD = standard deviation; N= sample size; Min = Minimum; Max = Maximum

Measures of central tendency were computed for the two variables to provide a summary of the

whole data. Measures of dispersion (Standard deviation, Variance and Range) were also computed in order to understand the variability, spread and distribution of variables in the sample. The variance in the type of business engaged in by the SSG's was big (304.10) compared to that of the technical subjects (7.39).

Chi-square results

The results of the chi-square test on the hypothesis are as summarized in Table 5.

Table 5: A chi square showing the relationship between the technical subject and the type of business engaged in by the secondary school graduates

KEY: 1st row = Frequency; 2nd row = row percentage; 3rd row = Column percentage

Technical subject	Type of business engaged in by the Secondary School Graduates								Total
	Agri-business	Food processing	Masonry	Carpentry	Motor vehicle mechanics	Metal work	Leather work	Other business	
Home science	22	53	3	1	1	1	4	0	85
	25.88	62.35	3.53	1.18	1.18	1.18	4.71	0	100
	15.38	51.46	5.77	5.26	3.57	10	16.67	0	21.63
Art and design	3	4	7	0	8	0	8	7	37
	8.11	10.81	18.92	0	28.57	0	21.62	18.92	100
	2.1	3.88	13.46	0	21.62	0	33.33	50	9.41
Agriculture	102	33	15	4	13	3	5	2	177
	57.63	18.64	8.47	2.26	7.34	1.69	2.82	1.13	100
	71.33	32.04	28.85	21.05	46.43	30	20.83	14.29	45.04
Wood work	2	1	3	10	1	0	0	0	18
	11.11	11.11	16.67	55.56	5.56	0	0	0	100
	1.4	1.94	5.77	52.63	3.57	0	0	0	4.58
Metal work	0	0	0	0	0	5	0	0	5
	0	0	0	0	0	100	0	0	100
	0	0	0	0	0	50	0	0	1.27
Building construction	0	1	14	1	0	0	0	0	16
	0	6.25	87.5	6.25	0	0	0	0	100
	0	0.97	26.92	5.26	0	0	0	0	4.07
Power mechanics	0	0	1	0	0	0	1	0	2
	0	0	50	0	0	0	50	0	100
	0	0	1.92	0	0	0	4.17	0. 00	0.51
Electricity	0	0	1	0	4	0	1	0	5
	0	0	20	0	60	0	20	0	100
	0	0	1.92	0	10.71	0	4.17	0	1.27
Drawing	1	1	3	0	0	0	2	1	8

and design	12.5	12.5	37.5	0	0	0	25	12.5	100
	0.7	0.97	5.77	0	0	0	8.33	7.14	2.04
Computer studies	13	9	5	3	2	1	3	4	40
	32.5	22.5	12.5	7.5	5	2.5	7.5	10	100
	9.09	8.74	9.62	15.79	7.14	10	12.5	28.57	2.04
Total	143	103	52	19	28	24	14	14	393
	36.39	26.21	13.23	4.83	7.12	2.54	6.11	3.56	100
	100	100	100	100	100	100	100	100	100

χ^2 (63) = 591.03   **P = 0.001**   **Cramer's V = 0.46**

Table 5 presents the results of the hypothesis test (χ^2 (63) = 591.03, $p<.001$, Cramer's V = 0.46, N=393). Given that it had been hypothesized that there is no significant difference between technical subjects and the type of self-employment engaged in by SSG's in Kenya, the null hypothesis is therefore rejected the alternative hypothesis accepted.

Conclusion

From the study findings it is established that there are significant differences between the observed and the expected frequencies of the type of technical subject chosen and the type of business engaged in by the SSG's. The moderate relationship (Cramer's V = 0.46) was to a certain extent a strong indication that technical subjects have failed to create a positive impact on the SSG's to consider self-employment as a career option. This implies that there is no link between the technical subjects offered in schools and the businesses engaged in by the SSG's. The study therefore recommends that technical subjects be made compulsory in school and each student should be encouraged to produce at least one marketable product or service, and such products should be put up for exhibition organized by the ministry of education in each district. This will further create motivation for entrepreneurship skill acquisition among the SSG's and hence able to start a business as a result of learning a technical subject.

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