



Effects of Demographics and Student-Parent-Related Factors on Human Capital Development among Rural Secondary School Students in Kilimanjaro Region, Tanzania

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Abstract: It is commonly presumed that schooling, including secondary education, is among the important contributors to human capital development (HCD) in terms of skills, knowledge and self-esteem acquisition. Information concerning the effect of demographic and student-parent-related factors on HCD among secondary school students is scarce, specifically in Tanzania. Thus, the aim of this chapter is to assess the effect of those factors on HCD among secondary school students in Rombo District in Tanzania. The study employed a cross-sectional research design and involved 385 form four (F4) students from eight secondary schools together with some key informants. Data were collected through a structured questionnaire and key informants' interviews. Association between variables was determined by using Pearson's Chi-square (χ^2) test and ANOVA, while the strength of the association was interpreted using Cramer's V score. The study findings show that there was a significant association between students' poor home learning environment and HCD level ($\chi^2 = 15.486$; $p \leq 0.01$) and parents' marital status and human capital (HC) scores ($F = 5.119$; $p \leq 0.05$). A positive significant association was also observed between the two variables, with Cramer's V score = 0.201 at a 5% level. It is concluded that secondary education is useful to students' present and future lives, thus it is important to deal with the factors that influence their HCD. It is recommended that government education planners and policy agents need to come up with strategies to alleviate the effects of demographics and other factors on the development of students' HC. This can be done by educating parents on how to improve the home learning environment through provisioning of books to their schooling children. Correspondingly, wherever possible, the government should supply enough books to the schools for the students to borrow and read at home.

Keywords: Human capital, Rural Secondary School, Demographic, Student-Parent-Related Factors, Tanzania

1. Introduction

Human Capital Development (HCD) commences with universal access to early childhood development programmes that provide health services, nutrition, and education. Investing in human capital (HC), particularly early childhood education, helps to develop high-order cognitive and socio-behavioural skills in addition to foundational skills (World Bank, 2019). Education provides the skills, knowledge, and self-esteem, which are the key components of HC. The two components (skills and knowledge) are the core elements in improving individuals' employment outcomes and labour productivity in the future. Basically, investment in HC ensures that the nation's human resource endowment is knowledgeable, skilled, productive and healthy to promote personal, social and economic well-being (Son, 2010; Siddharthan and Narayanan, 2013; Tan, 2014).

Education is believed to set values, knowledge, skills, and attitudes within individuals that empower them to contribute to sustainable development. It transforms and enriches societies by changing family preferences, social norms and

cultural practices (UNESCO, 2016a; UNESCO, 2017a; Al-Samarrai, *et al*, 2018; OECD, 2019). It is both an integral part of sustainable development and a key enabler for it, as argued in UNESCO (2016a). Furthermore, education, as argued by Crocker (2006), is a key element of human capital theory (HCT) because it is the primary means for developing knowledge and skills in a person. In connecting education to HCT, the theory assumes that an individual acquires knowledge and skills (i. e. HC), through education and training. This inevitably develops HC and makes the individual gain economic (productivity) and non-economic benefits (Becker, 1964; Vila, 2000).

For education to build adequate HC (skills and knowledge) within an individual, the quality component of education needs to be carefully observed. Quality education is expected to produce well-educated professionals, who are crucial to achieving goals in every area of sustainable development. Education quality is a global issue and as such, it is insisted on the fourth Sustainable Development Goal (SDG4). The goal states: *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all* (UNESCO, 2018; OECD, 2019).



Quality education contributes to better academic performance in terms of a test score, which is among the proxy measures of HC and an indicator of HCD (Stroombergen *et al.*, 2002; Dae-Bong, 2009; Son, 2010; Hanushek and Woessmann, 2012; OECD, 2012). It should be clear that in the course of developing HC, various factors related to family background, peers and individual abilities, have a crucial role to play. For instance, parental age and marital status are expected to affect students' academic performance. Parental age, in particular, has been claimed by Boyle *et al.* (2002) to affect HC of learners. It is argued that aged parents have little or no understanding of the benefits of education, thus, they are not likely to motivate their children to attend school and work hard. All these interfere with students' academic performance, resulting in inadequate HCD.

The study on which this article is based assessed demographic and student-parent-related factors that affect HCD in terms of skills, knowledge and self-esteem acquisition among secondary school students in Rombo District. The demographic factors encompassed students' age and sex and their parents' age and marital status; while the student-parent-related factors comprised the non-demographic factors, which were under the direct control of students and/or their families. The specific objectives were to: firstly, examine some demographic factors that affect HCD; secondly, determine student-parent-related factors that affect HCD and thirdly, determine the association between demographic and student-parent-related factors and students' HCD.

HC is perceived by Folloni and Vittadini (2010) as a complex, multifaceted phenomenon with various intangible dimensions that are not directly observable. Due to this, Stroombergen *et al.* (2002) argue that there is no single measure of HC which is likely to suit all research questions. Based on the analysis of the various literature, HC and HCD are interrelated concepts to the extent that they are used interchangeably in some literature.

HC generally implies the stock of skills, knowledge, and self-esteem, embedded in an individual, an organization and/or a nation. It is acquired by humans through various means, ranging from informal to formal education (Mincer, 1981; UNESCO, 2004; Dae-Bong, 2009). HCD, on the other hand, is referred to as the process of creating individuals with the appropriate HC, for the benefit of an individual and the nation, through various techniques. The techniques include learning within a family or at the workplace, through formal education and training, just to mention a few (Coleman, 1988; OECD, 2001; Johnson, 2011).

In a simple way, HC is a subset of HCD. Thus, for the purpose of this study, HC is operationalised as the skills, knowledge, and self-esteem acquired by students through formal secondary education (ordinary level). Likewise, HCD implies the process of fostering the skills, knowledge and personality attributes (self-esteem) within an individual through the same mechanism. The study focuses much on life skills, knowledge and self-esteem rather than market

outcomes like labour force and productivity. In other words, it concentrates more on the non-monetary benefits that accrue to the individual as a result of the investment in education. This is because students at level secondary level had not entered the labour market yet.

In the Tanzanian context, the role of education is articulated in policies and conventions such as Education for Self-Reliance (ESR) policy, Education For All (EFA), National Strategy for Growth and Reduction of Poverty (NSGRP) II, the National Education and Training Policy of 1995, the National Higher Education Policy of 1999 and the Tanzania Development Vision (TDV) 2025. The latter states the vision of education as to prepare a well-educated, knowledgeable and skilled Tanzanian (i.e. quality HC), able to competently and competitively cope with political, social, cultural, economic and technological development challenges at national and international levels (URT, 1995, 2010, 2012).

Tanzania's HCD has not been adequate to meet the growing development challenges and to facilitate the search for solutions to the development problems that the country faces. In particular, education has neither been geared towards integrating individuals into the competitive markets, both at local and international levels nor towards innovatively engaging Tanzanians in entrepreneurship and self-employment activities (URT, 2014).

Various studies (Becker, 1964; Mushi and Makauki, 2010; Farooq *et al.*, 2011; Mlambo, 2011; Hanushek and Woessmann, 2012; Ali *et al.*, 2013) have been conducted on education and/or HC. Mushi and Makauki (2010) for instance, assessed the contribution of socio-cultural and economic factors to girls' schooling in Sub-Saharan Africa. Furthermore, Mlambo (2011) analysed the factors affecting students' academic performance at the university level while Ali *et al.* (2013) researched the factors contributing to students' academic performance at the university level. Olaniyan and Okemakinde (2008) likewise, researched on HC and post-secondary or tertiary education with an emphasis on economic rewards.

The above-mentioned studies, however, concentrated at senior and post-secondary students as well as those who have completed higher education and had entered the labour force already. Thus, little information is known on the effects of demographic and student-parent-related factors on HCD in terms of skills, knowledge and self-esteem acquisition, specifically among secondary school students in Rombo District. The findings of this study will be useful to various educational practitioners (policymakers and education planners and implementers). The findings are expected to provide baseline information with respect to how demographic and student-parent-related factors affect HCD among secondary school students. Thus, the baseline information is expected to persuade government education planners and policymakers to put appropriate efforts to enable the appropriate development of HC. The findings will also provide an opportunity for benchmarking by scholars wishing to conduct similar studies in other districts of Tanzania.



2.0 Theoretical Framework

This study was guided by the Human Capital Theory (HCT). The theory puts emphasis on how education increases the productivity and efficiency of workers by increasing the level of cognitive skills of economically productive human resources. The HC theorists have established that basic literacy enhances the productivity of workers. In most cases, the advocates of the theory argue that investment in education and training transforms the available human resources into entities, referred to as HC. This creates more productive and functional members of society leading to greater economic outputs. The HCT holds that the well-being of a society is a function not only of the traditional stocks of financial capital, labour, and natural resources but also of the knowledge and skills of individuals (Becker, 1964; Walters, 2004; Crocker, 2006; Olaniyan and Okemakinde, 2008; Johnson, 2011; Tan, 2014).

Particularly, HCT predicts that increased knowledge and skills, through formal schooling or on-the-job training will yield improved economic outcomes for both individuals and society. Formal schooling specifically, is the primary mechanism for developing the initial stock of HC that entry-level workers bring into the labour market (Becker, 1964; Mincer, 1981; Crocker, 2006; Johnson, 2011; Tan, 2014). According to Al-Samarrai, Bendini, and Béteille (2018), the returns to an additional year of schooling for those who drop out without a high school or university education are as large as those who complete the degree.

Despite the above arguments, HCT is not a mere theory in economics, but a comprehensive approach analysing a wide spectrum of human affairs in light of a particular mindset. Although HC theorists concentrate on the economic value of education, there are broader issues related to its social value as well. The theory also recognises the non-monetary benefits that accrue to the individual as a result of the investment in education. It suggests that individuals and society derive economic and non-economic benefits from investments in people (Vila, 2000; Tan, 2014). This theory thus fits well in discussing the phenomenon under this study by concentrating not only on the economic benefit but also on a non-economic or socio-cultural value obtained through secondary education.

3.0 Methodology

The study was conducted in Rombo District, which is among the seven (7) districts of Kilimanjaro Region. The region was chosen due to the presence of many secondary schools. In 2013, the region had 332 secondary schools, which is the biggest number compared to other regions in Tanzania, and among these secondary schools, 48 were in Rombo District (URT, 2013).

A cross-sectional research design was employed in this study as it is appropriate for educational studies. The design also allows for triangulation in both data collection and analysis, for good measurement of the phenomenon being studied

(Cohen, Manion and Morrison, 2007). Form four students formed the unit of analysis and the sampling procedures included purposive and simple random sampling. Purposive sampling was used to select key informants (KIs) and schools while simple random sampling was used to select divisions and F4 students from each school. The KI were selected based on their knowledge of issues related to secondary education. On the other issue of schools, they were selected based on the years of existence (at least have completed form four once). Mengwe and Usseri divisions were randomly selected from the existing five divisions of Rombo district. Purposive selection of four (4) schools from each division to make a total of eight (8) schools was done. The study's sample consisted of 385 form four students enrolled in the eight sampled secondary schools. Rombo District Secondary Education Officer (DEO) and three Ward Education Coordinators (WECs) were also interviewed as key informants.

Primary qualitative data were collected from key informants through interviews while quantitative data were collected from the student respondents using a structured questionnaire. The questionnaire contained questions on some demographic factors (age, sex, and marital status) and their effect on HCD. Other questions were on the effect of student-parent-related factors on HCD. Secondary data were obtained from published and unpublished documents and reports from government offices, libraries, and various websites.

Data were cleaned and coded before being entered into the IBM SPSS Statistics computer programme, version 22 for analysis. For the purposes of data analysis, demographic (age, sex, and marital status) and student-parent-related factors (as shown in appendix 2) were designated as independent variables. Data were then analysed through the computation of descriptive statistics, which included frequencies, percentages, and means. Association between HCD level and students' sex, students' age, parents' age, and marital status was determined by using Chi-square (χ^2) test for independence. The strength of the association was interpreted using Cramer's V score.

HCD level was measured as a composite variable of skills, knowledge, and self-esteem acquired through secondary education as perceived by the students themselves. In order to statistically test the association between independent variables and the dependent variable, three levels of HCD were generated based on the scores indicated by the respondents. The students were asked to indicate how O-level education had helped them to develop their HC in terms of skills, knowledge, and self-esteem attained generally. The questions focused on whether the respondents had attained each of the 14 statements on HCD as indicated in Appendix 1. The statements constitute the skills, knowledge, and self-esteem acquired by the students through secondary education. They were presented in a form that permits a judgment of value rather than a judgment of fact, as suggested by Likert (1932).



The responses were recorded against each statement, in scores of 1, 2 and 3 corresponding to Low, Moderate and High level of attainment of HC, respectively. This is in accordance with Kautz *et al.* (2014) who argued that non-cognitive skills can be measured based on self-reported surveys. The scores obtained were subjected to a continuous composite 3-point Likert scale to get three levels of the dependent variable. In the analysis of Likert-type data, there is no specific number of points required in the scale to be adopted. According to Likert (1932), scales of 3 to 8 points have been commonly used by researchers depending on the relevance of the responses to answer the research questions. The maximum possible score for each of the 14 statements in the present study was 3 and for the composite measure (all the 14 statements) was 42 points (3 x 14) while the minimum and median composite scores were 14 points (1 x 14) and 28 points (2 x 14), respectively. This is in accordance with Likert (1932) who suggested that the score for each individual should be determined by finding the sum of numerical scores of the positions that the individual checking.

The cut-off points for the levels of HCD were demined by calculating the midpoints between the low and moderate level for the first cut-off point and between moderate and high level, for the second cut-off point. Thus, the cut-off points for the HCD levels were determined to be 21 and 35. Therefore, the scores for HCD level 1 (low) ranged from 14-21, HCD level 2 (moderate) ranged from 22-35 and HCD level 3 (high) ranged from 36-42 (Appendix 1).

4.0 Findings and Discussion

4.1 Demographic factors and their effects on HCD

Analysis of demographic factors gives statistical expression, which is helpful in data interpretation. In this study, the factors reflect the conditions outside the school that relate to students and their parents and are expected to affect the students' HCD differently. Personal characteristics of learners have been claimed to play an important role in their academic success as argued by Farooq *et al.* (2011). The factors considered under this study were sex and age of the respondents (students), and parents' age and marital status.

4.1.1 Students' sex

Study findings in Table 1 show that the proportion of girls (56.9%) in the studied schools outnumbered that of boys (43.1%). It was disclosed during interviews with some of the key informants that, the reason for the schools having more girls than boys was that most boys prefer small business to secondary education. The preference could be due to the existing poverty, which makes boys prefer business since it has immediate returns as compared to education.

Table 1: Percentage distribution of students by age and sex (n = 385)

Parameter	Frequency	Percent
Sex	Male	166 43.1
	Female	219 56.9
Age group	Up to 16	25 6.5
	17 – 19	335 87.0
	Above 19	19 4.9
	Did not give their age	6 1.6

The higher number of girls than boys in secondary schools could also be attributed to the performance in Primary School Leaving Examinations (PSLE). It is reported in URT (2011) that in Kilimanjaro region, more girls (64.1%) than boys (60.6%) passed the PSLE. It could further be due to a lack of awareness on the benefits of secondary education or lack of role models from those who previously completed their secondary education in the study area. Poor participation in education, regardless of sex, makes it difficult to attain EFA Goal 3. The goal aims at ensuring that the education needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes (UNESCO-UNICEF, 2013). Lack of schooling deprives young people of the chances of becoming a full potential workforce due to inadequately developed HC in terms of skills, knowledge, and self-esteem.

4.1.2 Students' age

The study findings show that the age of the students ranged between 15 and 20 years, with the mean age being 17.8 years. The maximum age differed from that of the nation, which had been above 22 from 2010 to 2013 (URT, 2013). The low ages of some students at F4 level in Tanzania could be that they started primary education earlier than the official age of 6 years. Usually, early schooling is expected to contribute to a high completion rate, but the age should be old enough for the students to capture and apply the knowledge and skills they acquire, in conducting examinations and in future life generally. Otherwise, there might not be an adequate improvement in students' HC in terms of skills, knowledge and self-esteem acquisition.

The higher ages of students are due to repetition, which is a result of the inability to pass in form two national examinations as pointed out by URT (2011). Although repetition might be promoted as a means to support the educational achievement of students, its consequence might have the opposing effect. Over-aged students, especially girls are vulnerable to school dropouts. Boyle *et al.* (2002) argue that, as girls progress through puberty into womanhood, the social pressures to marry and unplanned pregnancies increase significantly. This deprives them of acquiring the skills, knowledge, and self-esteem needed for the appropriate development of HC.

A comparison of the mean age of the respondents across the three categories of HCD was carried out by using a



comparison of means based on the Least Significant Difference (LSD). It was found that there was a significant difference ($p < 0.05$) between HCD levels, whereby respondents under the low HCD level had the highest mean age (18.11 ± 1.054 years). Those under the moderate HCD level had the lowest age (17.73 ± 0.995), which was significantly different ($p < 0.05$) from the age of respondents under the high HCD level (18.05 ± 0.965).

The effect of students' age and sex on the HCD level (measured in terms of skills, knowledge, and self-esteem) was determined through χ^2 test at a 5% level. The test showed no significant association between students' age and HCD level ($\chi^2 = 2.083$, $p \geq 0.721$) and sex and HCD level ($\chi^2 = 0.714$, $p \geq 0.700$) as shown in Table 2. This implies that students in this study have the same level of HCD regardless of their age categories and sex. Thus, age and sex have no significant role in developing students' HC.

Since test scores are among the proxy measures of HC (Son, 2010; Hanushek and Woessmann, 2012; OECD, 2012) students in all age groups are also expected to have similar academic performance. The current study findings conform with Mlambo (2011) who contends that age did not cause any significant variation in the academic performance of students. The findings, however, contradict those found by Ali *et al.* (2013). The authors argue that test scores and age have a negative correlation among graduate students. This was due to the fact that their study comprised university students, whose ages varied from youth to adult age. Most of them were adults with varying family obligations, as opposed to the current study where students were still young with no/or little family obligations. The current study results also contradict those by Abdullahi, *et al.*, (2015) who report a positive and significant association between age and students' academic achievement at the secondary school level.

With regard to sex, similar findings were reported by Mlambo (2011) and Abdullahi, *et al.*, (2015) who contend that there is no significant statistical difference between male and female students in academic achievement. Contrary to this, Guarcello, *et al.*, (2005) argue that the most important factor affecting performance is the sex of the child. The authors argue that being a female significantly raises the likelihood of good results in school examinations, which also reflects the level of HCD.

Table 2: Percentage proportions of respondents according to age group and sex across HCD levels (n = 385)

Factor	Category	HCD level			χ^2 Value	P-Value
		Low	Moderate	High		
Sex	Male	33.3	42.7	46.8	0.714	0.700
	Female	66.7	57.3	53.2		
Age group (years)	Up to 16	0.0	7.1	4.8	2.083	0.721
	17 – 19	88.9	88.3	88.7		
	Above 19	11.1	4.5	6.5		

4.1.3 Parents' age

The respondents were asked to provide information on the question about their parents' age. The age data were grouped into categories of age groups as shown in Table 3. Results show that more than two thirds (68.1% for fathers and 70.1% for mothers) of the respondents were in the age group of 40 – 59 years. This age group comprises the active and productive members of the community, who are expected to have the ability to work and earn some income for meeting the schooling costs of their children. Members of this age group are also expected to understand the benefit of their children's education. It was further found that the parents' age ranged from 34 to 75 years and 29 to 72 years for fathers (male) and mothers (female) of the respondents, respectively. The mean age for fathers was 52.6 years while that of mothers was 47.2 years.

In this study, parental age is assumed to affect HCD of the child in the sense that aged parents/guardians in rural areas tend to have no/or little education, thus they are likely to be less serious in following up the schooling of their children. Young parents are expected to be aware of the benefits of education, hence, could send their children to school, pay for their schooling requirements and motivate them to study hard. The respondents were thus asked to give the effects of parental age on their schooling in order to capture the effect of age on the development of HC as perceived by the students. It was found that 58.2% of the students responded that elderly parents are not aware of current issues or even the significance of secondary education in developing HC of their children. Therefore, the parents send them to secondary schools just because they passed their final primary school examinations.

Table 3: Distribution of students by parents' age group (n = 385)

Age group (years)	Frequency	Percent	
Male parents/guardians	≤ 39	10	2.6
	40 – 49	115	29.9
	50-59	147	38.2
	≥ 60	72	18.7
	Don't know	41	10.6
Female parents/guardians	≤ 39	65	16.9
	40 – 49	159	41.3
	50-59	114	29.6
	≥ 60	18	4.7
	Don't know	29	7.5

Other students reported that elderly parents could not pay school contributions (12.2%) and provide proper academic advice (12.7%). Thus, these children might attend school irregularly, resulting in inadequate development of their HC due to the acquisition of insufficient skills and knowledge. The findings are in line with Boyle *et al.* (2002) who argue that elderly parents have little or no understanding of the benefits of education, therefore they do not value their children's education that much. The remaining 16.9% of the



students reported that parental age has no effect on their academic achievement.

In order to statistically test the effect of parental age on students' HCD levels, χ^2 test was performed. Despite the students' responses on the effect of parental age on their HCD levels, the test proved that there was no significant association between the parental age group and students' HCD level ($\chi^2 = 11.08$; $df = 6$; $p \geq 0.05$ and $\chi^2 = 10.595$; $df = 6$; $p \geq 0.05$ for fathers and mothers, respectively). The analysis shows that parents' age did not differ significantly across the three HCD levels, at 5% of statistical significance (Table 4). This implies that parental age was not an influential factor for students' HCD levels.

Table 4: Percentage proportions of respondents according to parents' age group across HCD levels (n = 356)

Factor	Age group	HCD levels			χ^2 Value	P-Value
		Low	Moderate	High		
Male parents/guardians (years)	≤39	12.5	2.5	3.6	11.080	0.086
	40–49	37.5	35.9	20.0		
	50–59	12.5	42.3	49.1		
	≥60	37.5	19.2	27.3		
Female parents/guardians (years)	≤39	12.5	18.2	19.3	10.595	0.102
	40–49	50.0	46.4	35.1		
	50–59	12.5	31.3	38.6		
	≥60	25.0	4.1	7.0		

4.1.4 Marital status of parents/guardians

Parents' marital status was another demographic factor considered under this study. Respondents were asked to provide information on the marital status of their parents as married, not married, widowed and divorced. The responses were then re-coded as single- and double-parent categories for each respondent. Study results show that 82.3% of the students' parents were married or living together, while 3.6% were not married. The remaining 10.6% and 2.3% were widowed and divorced, respectively. However, 1.0% of the students did not disclose the marital status of their parents. Thus, among those who revealed the marital status of their parents, 16.8% and 83.2% of the students' families were under single- and double-parent family categories, respectively.

As argued by McLanahan and Sandefur (1994), parents have a major role to play in a child's academic achievement, which in turn predicts the level of HCD. According to the authors, providing all the family requirements while paying for a child's school needs by a single-parent might be difficult. The authors add that in America, single-parent families have higher poverty rates (26.5%) as compared to two-parent families (5.3% poverty rates). The high poverty rates cause economic hardships which translate into inadequate schooling contribution, hence inadequate HCD.

It was further realized during an interview with one of the key informants in the study area that a certain single mother wanted to commit suicide due to the hardships she was

facing in educating her children. However, the analysis between marital status and HCD level through the Pearson Chi-square test (Table 5) showed no significant association at a 5% level of statistical significance ($\chi^2 = 2.88$, $p \geq 0.237$). This implies that being in a single- or double-parent category has no influence on the level of students' HCD.

Table 5: Percentage proportions of respondents' parents according to marital status across HCD levels (n = 381)

Factor	Category	HCD level			Total	χ^2 Value	P-Values
		Low	Moderate	High			
Marital Status	Single	0.0	16.3	21.7	16.8	2.880	0.237
	Double	100.0	83.7	78.3	83.2		

As discussed above, none of the demographic variables (students' age and sex, fathers' and mothers' age, parents' marital status) showed significant association with students' HCD level through Cross tabulation. Thus, the data were then subjected to the Analysis of Variance (ANOVA) in order to find out if there was a significant effect of each of the variables on HC scores through F-Test. Appendix 2 presents the average HC scores and the associated standard deviations for each of the categories of the demographic variables investigated under this study.

Of all the demographic variables tested, only marital status showed a significant association with HC scores ($F = 5.119$; $p < 0.05$) as shown in Appendix 3. It was interesting to learn that the students with single parents portrayed significantly higher HC scores than those with both parents (31.89 vs. 30.51). This finding contradicts that of OECD (2016) which claims that students in single-parent families are 1.5 times more likely to be low performers in mathematics across OECD countries than those in two-parent families. Similarly, across OECD countries, students who live with single-parent scores 12 points lower in reading literacy than students who live with two parents. According to Martin (2012), two biological parent families are better able to use their resources and engage in academic-enhancing parenting practices than a single parent. The author claims that, among children with highly educated parents, children of single mothers are less likely to be highly educated compared to children who grow up with both biological parents.

The findings of the current study imply that there were extra efforts by the students in academic activities having realised their situation of being under single-parent and the challenges associated with it. They could also be due to the fact that married couples in the study area engaged in frequent fights among themselves as reported by 46.4% of the students when asked to give the effect parents' marital status on their schooling. The students claimed that:

“Our parents are not in good cooperation. They fight amongst themselves frequently. This, in turn, affects us psychologically, hence leading to poor performance and poorly developed HC.” According to Yarber and Sharp (2010), marital conflicts at home affects children



psychologically, consequently hindering their concentration in studies. This, in turn, may cause poor academic performance, which consequently results in poorly developed HC.

4.2 Student-parent-related factors and HCD

The respondents were asked to mention the extent to which each of the five student-parent-related factors contributed to their poor academic performance. The factors involved a poor commitment of students, peer group influence or peer pressure, involvement in love affairs, poor home learning environment and inability to pay for school contributions (uniforms, food, and learning materials). Since academic performance in terms of examination score is used as one of the proxy measures of HC (Crocker, 2006; Son, 2010; Hanushek and Woessmann, 2012), then whatsoever affects it, is expected to affect HCD as well. The effect of the factors was rated under three categories namely low, moderate and high extent according to students' views.

Table 6: Percentage distribution of respondents by opinions on the effect of student-parent-related factors to poor academic performance (n=385)

Factor	Score (extent)		
	Low	Moderate	High
Poor commitment of students	27.0	21.3	51.7
Peer group influence	44.4	9.6	46.0
Involvement in love affairs	40.0	9.6	50.4
Poor home learning environment	31.9	19.7	48.3
Inability to pay for school contributions (especially uniforms, food and learning materials)	31.4	17.4	51.2

Except for peer pressure (46%) and poor home learning environment (48.3%), the responses on the contribution of each of the factors as shown in Table 6 were rated by slightly more than half of the students, to contribute to poor academic achievement to a high extent. The aspects of poor home learning environment included mainly lack of parental learning support and unavailability of textbooks at home. Textbooks are believed to have the greatest influence on learning achievement among students (UNESCO, 2016b). It is unfortunate that despite calls for universal provision, textbook scarcity persists in many low-income countries (UNESCO, 2017b).

Peer group influence also scored relatively higher (44.4%) under the low column. Peer pressure is expected to bring about both negative and positive effects. Negative effects might include the involvement in illegal acts such as drug and alcohol abuse, which interferes with students' schooling.

The positive ones include raising educational attainment and the creation of social networks as argued by Checchi (2005). For the current study, however, the students were asked to consider the negative effects of peer group influence. It was

found that some students, especially boys in the surveyed schools were taking alcohol as attested by one of the WECs. According to Lochman and Steenhoven (2002), the use of alcohol is influenced by poor monitoring of a child's peer group selection. Thus, according to the type of peers one has, HCD can either be enhanced or deprived. Nevertheless, alcohol use in the study area might be of a cultural aspect rather than peer group influence although peers may contribute to excessive drinking.

Lack of funds specifically is a big challenge in rural families where the majority of households are poor. According to Vavrus (2002), the cost-sharing policy in Tanzania, which went into effect in the late 1980s, requires families to pay for their children a greater share of the costs associated with secondary schoolings such as school fees and other associated costs for uniforms, food and learning materials. For poor families, this becomes a big burden to endure and thus it is likely to affect the academic performance of a particular child since sometimes such students are forced out of classes to go home to collect school contributions. All these then interfere with students' learning, leading to poor academic outcomes and hence inadequately developed HC.

Fortunately, Tanzania's fifth-phase government abolished school fees at primary and O-level secondary education, commencing January 2016 to ensure all students attend school effectively (Tanzania Daily News, January 27, 2016). Thus, the challenge remains in the payment of the other school contributions.

Inferential analysis was further conducted to determine the association between student-parent-related factors and HCD levels. This was done through Cross-tabulation between the respondents' views on the extent of the contribution of student-parent-related factors and HCD levels. It was found that the majority of the respondents were at the moderate HCD level, irrespective of their response to the extent of the contribution of each factor on their academic performance. The proportions of the respondents in the low HCD level for each factor were comparatively lower than were those in the high HCD level across the three responses for each factor.

With the exception of one factor (home learning environment), the remaining factors were proved to be insignificantly associated with students' HCD levels. The study results show that a poor home learning environment was found to be significantly associated with the students' HCD level ($\chi^2 = 15.486$; $p \leq 0.01$). The strength of the association was further determined using Cramer's V score, whereby a positive significant association was observed ($V = 0.201$, $p < 0.004$). The association indicates a moderate relationship between the two variables. This result implies that students with better home learning environment were likely to have adequately developed HCD compared to their counterparts. Since test scores are among the proxy measures of students' HC (Son, 2010; Hanushek and Woessmann, 2012; OECD, 2012), a better home learning environment is also expected to contribute to the development of HC. It has been argued by OECD (2019) that for individuals to develop



as persons, citizens and professionals, the learning environment, among other factors, need to be reorganized.

The study findings, through cross-tabulation, showed no significant association between these variables and the HCD level (except for poor learning home environment). Thus, the data were then subjected to the ANOVA in order to find out if there was a significant effect of each of the student-parent-related variables on HC scores through F-Test. Mean scores were compared between categories of each variable and the results are presented in Appendix 2.

Generally, the results show that there was no significant effect ($p > 0.05$) of any of the five variables on HC scores of the respondents (Appendix 2). However, in absolute figures, there were differences in mean HC scores between different categories of each variable. For some variables, although the effect was not significant at 5%, it was slightly significant at 10% level of statistical significance. The variables which showed significant effect at 10% level were poor commitment of students ($p = 0.073$) and poor home learning environment ($p = 0.087$). It is surprising to note that the respondents who claimed that each of the factors had a high contribution to their poor performance, were found to have higher HC scores than those who claimed low contribution. This could be due to the fact that those students were studying hard to neutralize the effects of the factors.

5.0 Conclusion and Recommendations

The article analysed the effects of demographic and student-parent-related factors on HCD among secondary school students. The development of the learners' HC was found to be affected by various demographic and student-parent-related factors to varying extents. Among the factors, only parents' marital status and poor home learning environment showed a significant association with student's HCD. Furthermore, a positive significant association was observed between these two variables using Cramer's V score at a 5% level. Other factors were found to have a weak significant effect on the HC score at a 10% level, through F-Test. The factors were the poor commitment of students and poor home learning environment. Although some factors were found to be insignificantly associated with HCD levels, they affect students' HCD differently as attested by the respondents and some key informants in the study area. Thus, none of the factors need to be belittled when dealing with students' HCD.

Based on the findings of the study, it is recommended that government education planners and policy agents need to come up with strategies to alleviate the effect of demographic and other factors on the development of students' HC. One of the strategies could be to create a conducive home learning environment for the students to appropriately develop their HC. This can be done by educating parents on how to improve the home learning environment, for example providing their schooling children with textbooks. Correspondingly, wherever possible, the government should supply enough books to the schools for

the students to borrow and read at home. Further studies are recommended on socio-economic and school factors that affect students' HCD.

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Appendix 3: Human capital scores across the demographic factors

Parameter	Category	N	Mean	Std. Deviation	F value	P value	Remarks
Age of the respondents (years)	Up to 16	25	31.32	3.976	0.263	0.769	NS
	17 – 19	335	30.71	4.516			
	Above 19	19	31.11	5.238			
Father's age (years)	Total	379	30.77	4.512	1.707	0.165	NS
	≤ 39	10	29.40	5.317			
	40 – 49	115	30.25	4.199			
	50 – 59	147	31.37	4.326			
	≥ 60	72	30.76	4.952			
	Total	344	30.81	4.465			
Mother's age (years)	≤ 39	65	31.17	4.471	0.912	0.435	NS
	40 – 49	159	30.35	4.190			
	50 – 59	114	31.06	4.645			
	≥ 60	18	31.39	5.637			
Sex of respondent	Total	356	30.78	4.468	0.108	0.742	NS
	Male	166	30.87	4.357			
	Female	219	30.72	4.583			
Marital status of the respondent's parents	Total	385	30.79	4.482	5.119	0.024	Significant (P < 0.05)
	Single-parent	64	31.89	4.303			
	Double-parents	317	30.51	4.466			
Total		381	30.75	4.463			

Appendix 1: Educational factors that influence human capital development

Statements implying education helped the respondents develop their HC in terms of skills, knowledge and self-esteem	Maximum possible score	Actual score	
		1	2
1. Ability to apply family planning methods	3		
2. Ability to establish and run a business	3		
3. Ability to get employment in future	3		
4. Ability to conserve environment	3		
5. Ability to practise farming activities	3		
6. Knowledgeable in hygiene and sanitation	3		
7. Knowledgeable in HIV/AIDS and other communicable diseases	3		
8. Awareness of substance abuse and abstaining from it	3		
9. Ability to pass examinations – scores in Mock examinations	3		
10. Demonstration of self-confidence/believing in self-decision	3		
11. Showing self-respect/control/emotional stability	3		
12. Ability to communicate effectively	3		
13. Ability to make judgement while considering ethical values/social cohesion/interpersonal skills	3		
14. Ability to work in team/trustworthiness	3		
Total points scored		14	28

1 = O-level education has helped to develop human capital to low extent (low HCD level)
 2 = O-level education has helped moderately to develop human capital (moderate HCD level)
 3 = O-level education has helped highly to develop human capital (high HCD level)

Appendix 2: Mean HC scores of respondents across their views on the extent of the effect of different students-parent-related variables on academic performance

Parameter	Category	n	Mean	Std. Deviation	F value	P value
Poor commitment of students	Low	104	29.93	5.015	2.635	0.073
	Moderate	82	31.01	4.418		
	High	199	31.14	4.166		
	Total	385	30.79	4.482		
Peer group influence	Low	171	30.38	4.387	1.749	0.175
	Moderate	37	30.46	5.300		
	High	177	31.25	4.369		
Involvement in love affairs	Total	385	30.79	4.482	0.542	0.582
	Low	154	30.71	4.777		
	Moderate	37	30.16	4.120		
Poor home learning environment	High	194	30.97	4.312	2.461	0.087
	Low	123	30.46	4.247		
	Moderate	76	30.08	5.230		
	Total	385	30.79	4.482		
Inability to pay for school contributions (especially uniforms, food and learning materials)	High	186	31.29	4.263	1.526	0.219
	Low	120	30.66	4.700		
	Moderate	71	30.07	4.203		
	Total	385	30.79	4.482		