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RESEARCH ARTICLE

CAREER SELF-EFFICACY ON ENROLMENT AND COMPLETION RATES OF STUDENTS IN STEM-ORIENTED COURSES IN SELECTED PUBLIC UNIVERSITIES IN KENYA

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ABSTRACT

Aspirations of students for careers in Science, Technology, Engineering, and Mathematics (STEM) have been found to be positively correlated with their positive impressions of scientists and engineers. In this study, the influence of gender on self-efficacy in STEM field particularly in computer science, health related courses, engineering, agriculture and sciences was examined. The study adopted a mixed methods research design involves the integration of both quantitative and qualitative approaches. The population of the study were students pursuing STEM courses in three selected public universities (University of Nairobi, Jomo Kenyatta University of Agriculture & Technology (JKUAT), and Egerton University). The study included three sampling techniques, namely, purposive, stratified and simple random sampling. Both quantitative and qualitative data was collected and analysed. A simple linear regression analysis shows R value of 0.590, indicating a moderately positive correlation between career self-efficacy and enrolment. The R Square value of 0.230 implies that 23% of the variance in enrolment can be explained by career self-efficacy alone. The findings further revealed that career self-efficacy had a negligible explanatory power in predicting students' course completion status in STEM-oriented programs. The low pseudo R-square values (Cox and Snell $R^2 = 0.005$; Nagelkerke $R^2 = 0.009$) indicate that career self-efficacy alone accounts for less than 1% of the variance in students' academic progress. This study concludes that career self-efficacy plays a significant but limited role in influencing students' decisions to enrol in STEM-oriented courses. Career self-efficacy alone does not sufficiently predict course completion; Universities should implement multifaceted support systems. This should include academic advising, psychosocial counselling and learning support services that address the diverse challenges students face throughout their academic journey

Keywords: *Career, Self-Efficacy, Enrolment, Completion Rates & STEM-Oriented Courses*

INTRODUCTION

The growing need for a worldwide STEM workforce in our society has led to increased national efforts to advance STEM education (Bal-Taştan, et al., 2018). Education stakeholders should design appropriate instructional and social learning environments and develop tactics that positively influence students' learning in order to support students in improving their STEM learning outcomes (Gulistan & Hussain, 2017). It is crucial to comprehend the elements that affect students' STEM learning for this reason. Self-efficacy, achievement, and career interest are frequently discussed themes in the field of STEM education research. In an academic setting, a student's perceptions of their own abilities to carry out and succeed in particular assignments and activities are referred to as their self-efficacy (Bal-Taştan, et al., 2018). According to earlier studies, Berland and Steingut (2016) students' self-efficacy is substantially connected with their academic achievement, engagement, effort, motivation, course selection, and future job decision. Furthermore, research has demonstrated that, in comparison to students with average or below average self-efficacy, students with high self-efficacy are more successful at creating and following a work schedule, monitoring their progress, and setting academic goals (Gulistan & Hussain, 2017). Future decisions, career interest, achievement, and self-efficacy of students are closely related.

Self-esteem serves as a foundation for and is intimately linked to self-efficacy and self-concept. According to Ketenci, Leroux and Renken (2020) self-esteem is an emotive assessment of oneself that includes sentiments of self-worth and self-likeness. Self-esteem represents broad, evaluative feelings, whereas self-concept is typically thought of as unique to a domain (e.g., arithmetic or verbal abilities) and self-efficacy as specific to a task or objective (Knowles, 2017). Self-efficacy is often a better predictor of task-specific performance than self-concept, since it is more directly related to performance on a particular task (Mataka & Kowalske, 2015). Goal-setting and self-regulation during performance are two ways that self-efficacy is hypothesized to affect task performance (Witt-Rose, 2003). Self-regulation entails keeping an eye on one's own performance while carrying out tasks and keeping track of the results. For instance, research indicates that higher levels of self-efficacy are linked to higher levels of cognitive involvement during a task (Shahzad & Naureen, 2017).

Self-efficacy influences people's ambitions as well. More commitment to the adoption of more difficult goals are correlated with higher levels of self-efficacy. Furthermore, self-efficacy affects how encouraging or discouraging differences between performance and goals are. For instance, a student aims for an A on her forthcoming maths test and ends up with a B (Wiebe, Unfried, & Faber, 2018). When people strive toward long-term objectives, or end goals, like passing calculus or getting an engineering degree, self-efficacy plays a crucial role. Numerous smaller, proximal goals indicate progress toward the ultimate goal (Wambu & Kindiki, 2015).

Research has shown that increased science self-efficacy may lead to greater pleasure of science activities, which may have an impact on students' commitment, motivation, and effort when learning science in the classroom (Salgado et al., 2018). Research has demonstrated that self-efficacy is among the most significant affective subcomponents when it comes to influencing students' achievement in science and mathematics (Salonen, Kärkkäinen & Keinonen, 2018). Science self-efficacy has a substantial influence on students’ achievement in science courses and their overall career trajectory. Self-Efficacy in Mathematics and Interest in STEM Careers Students' interest in STEM occupations is correlated with their self-efficacy in mathematics.

Numerous more student-variable interactions illustrate the association between mathematics self-efficacy and interest in a STEM career. To give one example, some scholars have suggested that achievement in mathematics courses is connected with mathematics self-efficacy (Zuo, Ferris, & LaForce, 2020). Additionally, it has been demonstrated that students' success and perseverance in other STEM-related courses are predicted by their maths achievement (Perera & John, 2020). Students' interest in STEM career pathways is significantly influenced by the relationships between the variables of mathematics achievement, mathematics self-efficacy, and success and persistence in STEM-related courses (Nugent, et al., 2015). The precise relationship between student career interest in each of the particular STEM disciplines and self-efficacy, despite previous studies suggesting a connection between the two, is yet unknown. There are especially not many studies that look at the connection between certain STEM fields and the self-efficacy of science and mathematics. Thus, the purpose of the current study was to investigate career self-efficacy on enrolment and completion rates of students in stem-oriented courses.

METHODOLOGY

Research Design

According to Kothari (2004), a research design serves as a guide for gathering, measuring, and analysing data. A correlation survey research design was used for this investigation. A correlational research design makes it simpler to look at the relationship between the variables without changing or manipulating any of them. A correlation shows the strength and/or direction of the relationship between two or more variables. According to Johnson and Christensen (2012), a correlation might be either positive or negative. The correlational research design proved to be the most successful approach for conducting this study due to its advantages.

Research Location

The study was carried out in the counties of Nairobi, Kiambu, and Nakuru, which are home to the University of Nairobi, Egerton University, and Jomo Kenyatta University of Agriculture & Technology (JKUAT). 104197 students were the study's target population, and they were selected from seven faculties or schools: the faculties of health sciences, engineering, pure and applied sciences, computer science, agricultural sciences, education, environmental science, and building, construction, and architecture.

Sampling Framework

Out of thirty-five (35) currently operating chartered public universities, three (3) historic universities were chosen through the use of purposeful sampling. 384 students were chosen as the sample size using Nassiuma's (2008) formula. After classifying the students into strata according to the seven faculties, a list was created, and 384 respondents were chosen using a rotating technique and simple random selection to prevent participant bias. Deans, heads of departments, and academic registrars were among the thirty (30) key informants who were purposefully selected from the three universities.

Study Tools

Two techniques were used to collect data for the study: self-administered questionnaires and key informant interviews. Using multiple methods to collect the same data reduces the disadvantages of using only one method, enhances understanding of the issues under study, and increases the precision of the findings (Jensen, 2011). This study triangulated the data collected using multiple methods to produce a single report. Relying on the two pieces of equipment improved the accuracy and comprehensiveness of the data collected. Furthermore, it enhanced understanding of the socioeconomic factors influencing gender disparities in STEM (science, technology, engineering, and math) course enrolment and completion rates at a few public universities.

As part of the study, questionnaires were distributed to the 384 selected students who were enrolled in science, technology, engineering, and maths courses. Because they reduced time and money in administering them, the surveys were suitable for the respondents. Creswell et al. (2007) define a questionnaire as a self-report instrument used to collect the required data. A questionnaire ensures a high response rate and little bias, while also providing the advantage of face-to-face engagement and the required explanations (Mugenda & Mugenda, 2003). Another advantage of the surveys is the decreased expense of data processing and analysis.

The quantitative information obtained from document analysis and surveys was complemented with trustworthy, thorough responses from key informant interview schedules. Instead of following a preset list of questions, the interviewer used more open-ended questions that promoted discussion rather than a strict question-and-answer format, as recommended by Degu and Yigzaw (2006). Academic registrars, deans, and department heads at each of the various institutions that offer STEM courses participated in open-ended interviews to gather the most crucial data on the disparities in the number of students enrolled in science and technology programs.

Data Collection Procedures

After receiving approval from the board of postgraduate studies, the National Commission for Science, Technology & Innovation (NACOSTI) was asked for research license. As a result, the researcher was able to secure cooperation and support from alumni and vice chancellors at several public universities. It also made obtaining the appropriate sample size in the research areas easier for the researcher. Appointments for meetings with the target subjects were made in advance through the dean of students' office, which helped identify the student participants. The offices of the program administrators for each university provided the enrolment data.

Data Analysis

Using SPSS software, quantitative data was examined using both descriptive and inferential statistics. With the aid of N-Vivo software, which produced codes and themes based on the replies given, qualitative data was evaluated using content analysis. Triangulation of the data resulted in a single study report.

Ethical Considerations

The researcher was able to secure a study permission from NACOSTI (NACOSTI/24/36291) after receiving an introductory letter from the school of Postgraduate Studies and ethical approval from the ethical review committee. The county commissioners and education officers from the counties where the chosen colleges are located sent the researcher with an introductory letter upon obtaining the study authorisation. The registrar of academics and the dean of students from the chosen universities were contacted via the letters. Every ethical principle, including voluntary involvement, informed consent, and secrecy, was upheld.

RESULTS

Table 1 represents background information of the respondents. The results show that male, account for 214 (62.6%) while 128 (37.4%) were female. Majority of the respondents 213 (62·3%) were in the age bracket of 21–23 years, while 79 (23.1%) were in the age of 18–20 years. The remaining 50 respondents (14. 6%) are recorded under those 24–26 years. The finding indicate that majority of the respondents are within the ages of 21–23 years which is an age group that is commonly associated with universities and therefore correlate with the likelihood of being involved in STEM education.

Findings on the KCSE examination show that 121 (35. 4%) of respondents scored an A- grade, while 76 (22. 2%) secured a B and B+ grade, respectively. Together, these three grades (B, B+, and A-) account for nearly 80% of the total sample, indicating that the majority of students in this cohort performed at a relatively high academic level. The grades at the extremes of the scale, B- and C+ are less common. Only 19 students scored B- and 21 students (6.1%) received a C+. The relatively low frequency of B- and C+ grades suggests that few students performed at the minimum level typically considered for university entry.

The findings show that majority of the respondents 143 students (41.8%) pursued science-based courses while engineering had fewer students taking the course with only 79 students (23.1%) followed by mathematics with 69 students (20.2%). The number of respondents enrolled in Technology is comparatively smaller, 51 (14.9%) which may suggest that students in this faculty should be encouraged or provided with more support/resources. The data also reveals the interest in science and engineering courses, which are mostly inclined towards male students and may thus augment the gender divide.

The study findings show that 63 students (18.4%) were in Year 5 which is a low representation compared to year 3 and year 4. This could be due to students graduating or transitioning out of the program after Year 4 or the engineering students who have a 5-year undergraduate program. The majority of the respondents were in their third year with 101 (29.5%) and fourth years with 94 (27.5%). This distribution implies that the collected sample contains numerous students who are pretty much into their courses. The lower response rate in Year 1 (33 respondents, 9.6%) and Year 2 (51 respondents, 14.9%) can be explained by the difficulties in attracting students to the STEM courses or their dropout due to the socioeconomic or gender reasons. This initial drop-off could also be due to students reassessing their commitment to the program early on. The distribution of students by the year of study reveals that most students are in Year 3 and 4, while a few are in Year 5. It is evident that distribution pattern has transitioned at the end of Year 4, an indication that a majority of STEM programs in Kenya have a four-year period. This group helped in comprehension of the factors contributing to such trends would prove beneficial in the efforts aimed to improve retention and success rate in the terminal years.

Table 1: Demographic characteristics of the respondents

Respondent's gender	Frequency	Percent
Male	214	62.6
Female	128	37.4
Total	**342**	**100.0**
Respondent's age		
18–20 years	79	23.1
21–23 years	213	62.3
24–26 years	50	14.6
Total	**342**	**100.0**
KCSE examination grade		
C+	21	6.1
B-	19	5.6
B	76	22.2
B+	76	22.2
A-	121	35.4
A	29	8.5
Total	**342**	**100.0**
STEM Course Pursuing		
Bachelor of Science	101	29.5
Computer science	51	14.9
Engineering	79	23.1
Health science	69	20.2
Agriculture	42	12.3
Total	**342**	**100.0**
Year of Study		
Year 1	33	9.6
Year 2	51	14.9
Year 3	101	29.5
Year 4	94	27.5
Year 5	63	18.4
Total	**342**	**100.0**

Source: Field data, 2024

Motivation to pursue STEM courses

Table 2 makes it clear that there are more male than female enrolled in each of the five STEM course areas. male make up 79 (23.1%) of the bachelor's degree holders in science, female 22

(6.4%) and Male 33 (9.5%) in computer science, Female 18 (5.3%) and male 51 (14.9%) in engineering, female 25 (7.3%) and male 42 (12.3%) in health science, female 27 (7.9%) and male 26 (7.5%) in agriculture, and female 16 (4.7%).

Table 2: Gender segregated data on enrolment in STEM courses

STEM Course	Male		Female	
	Freq	Per	Freq	Per
Bachelor of Science	79	23.1%	22	6.4%
Computer science	33	9.6%	18	5.3%
Engineering	51	14.9%	25	7.3%
Health science	42	12.3%	27	7.9%
Agriculture	26	7.6%	16	4.7%

Career Self-efficacy and Enrolment Rates of Students in STEM Oriented Courses

Table 3: shows a simple linear regression analysis was conducted to determine the effect of career self–efficacy on enrolment in STEM courses. The table 3 shows that the R value of 0.590, indicating a moderately positive correlation between career self-efficacy an enrolment. The R Square value of 0.230 implies that 23% of the variance in enrolment can be explained by career self-efficacy alone. However, the Adjusted R Square is very low (0.003), suggesting that the model may not generalize well beyond the sample.

The results of the ANOVA test further confirm the statistical significance of the regression model. The regression model yielded an F-statistic of 21.170 with a significance level (P-Value of 0.000), which is well below the conventional threshold of 0.05. This indicates that the model is statistically significant and that career self-efficacy does in fact have significant predictive relationship with enrolment.

The unstandardised coefficient (B) for career self-efficacy is 0.490 with a standard error of 0. 046.This indicates that every one –Unit increases in career self-efficacy, enrolment in STEM courses increases by 0.490 units. Holding all other factors constant, the t-value of 1.082 and a P-Value of 0.000 confirm that the effect of career self-efficacy on enrolment is statistically significant.

Table 3: Regression results of career self-efficacy and enrolment rates of students in STEM oriented courses

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.590[a]	.230	.003	.45423

a. Predictors: (Constant), Career self-efficacy

b. Dependent Variable: Enrolment

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.382	1	4.382	21.170	.000[b]
	Residual	70.150	340	.206		
	Total	74.532	341			

a. Dependent Variable: Enrolment
b. Predictors: (Constant), Career self-efficacy

Coefficients[a]

Model		Unstandardised Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.852	.205		18.762	.000
	Career self-efficacy	.490	.046	.059	1.082	.000

a. Dependent Variable: Enrolment

Some key respondents gave the following comments on the effect of career self-efficacy on STEM enrolment rates:

….. *With clearer career prospects and a higher demand for STEM professionals, students studying STEM careers seem more confident in their choices than before*.

Key informant interview, dean

Career Self-efficacy and Completion Rates of Students in STEM Oriented

Results in Table 4 indicate a logistic regression analysis which was conducted to assess the relationship between career self-efficacy and completion rates of students enrolled in STEM-oriented courses. The models overall performance was evaluated using the -2 Log likelihood value, pseudo R-squared statistics, the Hosmer and Lemeshow goodness of fit test. The model produced a -2 Log Likelihood value of 257.060, suggesting a moderately fitting model when compared to other potential models. Cox and Snell R square (0.005) and the Nagelkerke R square (0.009) values indicate that career self-efficacy explains less than 1% of the variation in students course completion status. This suggest that while the model may statistically fit the data, its explanatory power is extremely limited. The Hosmer and Lemeshow test yielded a chi-square value of 7.998 with 7 degrees of freedom and a significant level of P=0.333. Since the P-value is greater than 0.05 the test indicates that the model has a good fit that is the predicted values are not significantly different from the observed values. Therefore the model can be considered adequate in terms of statistical calibration. From the findings Hosmer and Lemeshow test shows very low productive accuracy for students falling behind in their studies and explains only a negligible amount of the variation in completion rates. These findings suggest that career self-efficacy alone is not a significant predictor of students' academic progression in STEM oriented courses and that other factors should be explored to build a more robust predictive model.

Table 4: Logistic regression results of career self-efficacy and completion rates of students in STEM oriented courses

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	257.060[a]	.005	.009

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	7.998	7	.333

Classification Table[a]

Observed	Predicted		
	Course progress towards completion compared to others		Percentage Correct
	At the same level	A semester (s) behind my colleagues	

Step 1	Course progress towards completion compared to others	At the same level	299	0	100.0
		A semester (s) behind my colleagues	43	0	.0
	Overall Percentage				87.4

a. The cut value is .500

DISCUSSION

The demographic distribution of the respondents in this study provides an important contextual insight into the dynamics of STEM enrolment and progression among University students. The findings show that male students were more, compared to female in STEM courses in the selected universities. This gender imbalance reflects global trends as noted by UNSECO (2017) which highlighted that women remain under-represented in science, technology, engineering and mathematics particularly in engineering and technology disciplines. Autenrieth, Lewis and Butler-Purry (2018) emphasized that cultural stereotypes and limited exposure to female role models in STEM discourages girls from pursuing such careers, leading to fewer women in these programs.

The majority of respondents, according to the age distribution, were between the ages of 21 and 23, which corresponds to students in their middle to last year of university studies. The results indicate that the sample is primarily made up of students who have passed the foundational levels of the four KNEC exams, which is in line with the usual enrolment patterns in Kenyan public universities. These are significant because students in later academic stages are more likely to have made stable career plans and, as a result, give better answers on self-efficacy and enrolment reasons (Berland and Steingut, 2016).

Academic performance, as reflected by KCSE grades, shows that a significant proportion of respondents scored within high-performance bands of A-to B plain collectively representing nearly 80% of the sample. This suggests that STEM programs in Kenyan universities are attracting high-achieving students**,** aligning with entry requirements and the findings of Gulistan and Hussain (2017), who noted that admission into science-based programs is highly competitive and skewed toward academically elite students. However, the low number of students with C+ and B- grades highlights the continued exclusion of average-performing students, potentially reinforcing social and academic stratification.

With regard to fields of study, 41.8% of students pursued science courses, followed by engineering (23.1%), mathematics (20.2%), and technology (14.9%). The lower enrolment in technology is noteworthy, and could be attributed to limited program availability, weaker career guidance, or perceived difficulty. This is consistent with findings by Jackson, et al., (2019)**,** who observed that in the Kenyan context, technology and applied sciences are often less popular due to inadequate exposure at secondary school levels. Moreover, the concentration of students in science and engineering reflects broader gendered preferences, where boys are more likely to be steered toward physical sciences and technical fields**,** as discussed by Ketenci, Leroux and Renken (2020)

In terms of year of study, the highest representation came from third-year and fourth-year students, with fewer students in Year 1 and Year 2. The early years' lower numbers might indicate early attrition rates, which could be caused by pressure to perform well academically, financial difficulties, or a reassessment of career choices. This pattern is consistent with research by Li et al. (2019), who contend that early dropout is a prevalent issue in higher education, particularly in rigorous disciplines like STEM. Given that the majority of STEM programs in Kenya last four years, with only engineering programs lasting five, the low percentage of students in Year 5 (18.4%) is also to be expected. Deeper participation in the study is supported by the comparatively greater numbers in later years, which imply that the sampled students are more seasoned and probably have developed stronger academic and occupational identities.

Taken together, these findings provide a nuanced understanding of the student profile in STEM fields in Kenya and align with global research highlighting gender gaps, academic selectivity, and program-specific challenges. They also point to the need for targeted interventions in early university years to reduce dropout and encourage female participation, in line with recommendations by Kelley et al. (2020) on strengthening inclusive STEM education policies across Africa.

The findings from the simple linear regression analysis indicate a moderately positive correlation (R = 0.590) between career self-efficacy and enrolment in STEM courses, suggesting that students with stronger beliefs in their career capabilities are more likely to enrol in STEM programs. This is supported by the R Square value of 0.230**,** which shows that career self-efficacy accounts for 23% of the variance in enrolment, demonstrating that self-beliefs are a meaningful, though partial, predictor of STEM engagement.

These findings are consistent with the Social Cognitive Career Theory (SCCT) advanced by Lent, Brown, and Hackett (1994), which emphasizes the central role of self-efficacy in shaping academic and career-related choices. According to SCCT, individuals who perceive themselves as competent and capable are more likely to pursue challenging career paths, such as those in STEM, and persist despite obstacles. This theoretical framework aligns closely with the present study's results, in which higher levels of career self-efficacy significantly predicted increased enrolment.

The statistically significant F-statistic (21.170, p = 0.000) and coefficient (B = 0.490, p = 0.000) further reinforce the importance of self-efficacy in determining students' academic pathways. Similar conclusions were drawn by Byars-Winston and Rogers (2019), who found that self-efficacy is a critical determinant of career interests, especially in STEM fields where women and under-represented groups may lack confidence due to stereotypes or institutional barriers.

However, the very low adjusted R Square (0.003) in the current study suggests that while the relationship between career self-efficacy and enrolment is statistically significant, the model may not perform well across different populations. This limitation supports the work of Ali et al. (2020)**,** who argued that self-efficacy, although important, must be considered alongside a variety of contextual factors such as family influence, socio-economic status, institutional support, and prior academic performance to fully understand students' enrolment decisions.

Furthermore, Bandura (1997) highlighted that self-efficacy alone may not guarantee action unless supported by enabling environments and resources. Therefore, while career self-efficacy significantly influences enrolment in this study, its predictive power could be amplified or constrained depending on external conditions such as mentorship opportunities, availability of scholarships, or exposure to role models in STEM.

In contrast, scholars such as Wang and Degol (2013) argue for a multi-dimensional approach to understanding STEM engagement, emphasizing that identity, interest, perceived value, and social belonging also play essential roles. The current study's results affirm their call for integrating both psychological (e.g., self-efficacy) and contextual variables to build more robust models of STEM participation.

Career Self-efficacy and Enrolment Rates of Students in STEM Oriented Courses in Selected Public Universities in Kenya

The findings of this study revealed that career self-efficacy had a negligible explanatory power in predicting students' course completion status in STEM-oriented programs. The low pseudo R-square values (Cox and Snell $R^2 = 0.005$; Nagelkerke $R^2 = 0.009$) indicate that career self-efficacy alone accounts for less than 1% of the variance in students' academic progress. While the Hosmer and Lemeshow test ($\chi^2 = 7.998$, $df = 7$, $p = 0.333$) confirmed that the model fits the data adequately, the classification table demonstrated poor predictive accuracy for students who were falling behind, further weakening the utility of the model.

These results contrast with those of a number of earlier studies that found a strong positive correlation between academic success or persistence in STEM disciplines and career self-efficacy. In their Social Cognitive Career Theory (SCCT), for example, Lent, Brown, and Hackett (1994) highlighted the importance of self-efficacy beliefs in academic decisions, performance, and perseverance, especially in demanding disciplines like science and engineering. Similarly, Byars-Winston and Rogers (2019) contended that, among under-represented groups in STEM, career self-efficacy is a strong predictor of academic persistence, particularly when mediated by contextual factors like personal drive, institutional support, and mentoring.

The results of the current study, however, are consistent with those of Ali et al. (2020), who discovered that although career self-efficacy is a pertinent psychological construct, it might not be a significant predictor of academic outcomes on its own unless paired with other factors like peer support, institutional climate, socioeconomic status, and prior academic preparation. This implies that additional structural and environmental factors may have a greater impact on academic advancement for Kenyan STEM students—especially those enrolled in the studied institutions—than just personal views.

Furthermore, Bong and Skaalvik (2003) point out that self-efficacy varies by domain and might not always result in performance outcomes in the absence of supportive learning environments, stable socio-emotional well-being, and access to learning resources. Thus, the study's finding that career self-efficacy had a little impact on course completion rates might be the result of contextual factors that the model did not take into consideration, such as pressure from the curriculum, budgetary limitations, or a lack of academic support.

CONCLUSION

The findings of the study indicate that career self-efficacy plays a significant but limited role in influencing students' decisions to enrol in STEM-oriented programs. Career self-efficacy and enrolment showed a fairly favourable connection (R = 0.590) according to the simple linear regression analysis, with career self-efficacy accounting for 23% of the variance in enrolment. This implies that STEM-related courses are more likely to be chosen by students who are confident in their professional talents. In STEM education, career self-efficacy is a vital but incomplete component in interpreting student behaviour. While it plays a major role in enrolment decisions, it has little effect on students' academic achievement or course completion. Thus, in order to better understand and encourage student performance in STEM subjects, a multidimensional strategy that takes into account extra psychological, social, and institutional elements is need.

RECOMMENDATIONS

Institutions should enhance career guidance and counselling services so that to build career self-efficacy but also address broader motivational and psychological factors. Also institutions should adopt student Mentorship programs that connect students with successful STEM professionals particularly female and under-represented role models which can help to boost both enrolment and persistence.

Career self-efficacy alone does not sufficiently predict course completion; Universities should implement multifaceted support systems. This should include academic advising, psychosocial counselling and learning support services that address the diverse challenges students face throughout their academic journey.

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