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Educational Level (Year of Study) and Marital Status as Demographic Correlates Students' Performance in Computer Programming in Federal Universities in South-Eastern Nigeria

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Abstract: This study investigated educational level (year of study) and marital status as demographic correlates students' performance in computer programming in Federal Universities in South-Eastern Nigeria. A correlational survey research design was adopted for the study. The accessible population comprised 5,400 undergraduate students from Computer Science Departments (offering computer programming courses) in selected Federal Universities in South-Eastern Nigeria. A sample size for the study was 372, determined using Taro Yamane's formula, a multistage sampling technique were employed. Data were collected using a structured questionnaire titled "Educational Level and Marital Status Questionnaire" (ELMSQ) and students' academic performance records in programming courses. Three experts; one in Computer Science, one in Educational Measurement and Evaluation, and one in educational research were validate the instrument's face and content. The reliability of the instrument were determined using Cronbach's Alpha reliability coefficient. A reliability coefficient of 0.98 and 0.97 for cluster 1 and 2 respectively and 0.98 for overall, the result were considered acceptable for the study. The data collected were analyzed using Pearson Product Moment Correlation Coefficient to answer the research questions. The null hypotheses were tested using One Way Analysis of Variance (ANOVA) at .05 level of significance. The findings revealed a very weak relationship for educational level (year of study) with students performance in computer programming, whereas weak correlation for marital status demonstrated a comparatively. It was therefore, recommended among others that structured programming support programs should be established by federal universities, especially for first- and second-year students who frequently struggle to adjust to programming principles. As students advance through various academic levels, tutorials, mentoring programs, coding clinics, and peer-assisted learning activities should be arranged on a regular basis to boost their proficiency and self-assurance and lecturers of computer programming should create instructional strategies that take into account the diverse practical and cognitive requirements of students at different academic levels. While lower-level students should receive basic help to enable steady skill growth and increased academic achievement, advanced students should be introduced to more challenging programming tasks.

Keywords: *Educational Level, Marital Status, Demographic Correlates, Students Performance, Computer Programming, Federal Universities.*

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I. INTRODUCTION

Computer programming remains one of the most challenging courses for undergraduate students in Nigerian universities due to its abstract concepts, logical reasoning requirements, and intensive practical activities. Despite the growing importance of programming skills in the digital economy and the increasing demand for competent

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computing professionals, students' performance in programming courses in many Nigerian universities continues to be a source of concern among educators, administrators, and employers. Numerous elements, including cognitive abilities, learning motivation, computational thinking, instructional strategies, and learner demographics, have been found to impact programming achievement ([21]. While factors like gender, age, and computational thinking have received a lot of attention, there is little empirical data on the precise relationship between students' performance in computer programming and their educational level (year of study) and marital status, especially in Federal Universities in South-Eastern Nigeria.

Additionally, students' academic burden, learning opportunities, and programming experience change depending on their year of study, which may have an impact on their programming proficiency and success. Similar to this, students' academic involvement may be impacted by their marital status due to added family duties, time limits, and socioeconomic pressures. The impact of marital status and other demographic factors on students' educational outcomes has been the subject of conflicting findings in earlier research on academic performance, making it challenging to extrapolate such findings to computer programming environments. Consequently, there is insufficient evidence regarding whether educational level (year of study) and marital status significantly correlate with students' performance in computer programming in Federal Universities in South-Eastern Nigeria. This knowledge gap necessitates the present study to determine the extent to which these demographic variables are associated with programming performance, thereby providing evidence-based information for curriculum planners, lecturers, and educational policymakers aimed at improving students' achievement in computer programming.

In the digital age, computer programming is now one of the most important skills required. It is the bedrock of software development, of artificial intelligence, of data science, of cybersecurity, of the host of technological innovations that power the modern economy. As a result, programming courses are a core part of Computer Science, Information Technology, Computer Engineering and similar fields in universities worldwide. But it remains one of the more difficult courses for many students because it deals with abstract concepts, logical reasoning, problem solving and practical work. Prior research has identified consistent patterns of variation in students' programming achievement with several individual, institutional, and demographic factors influencing performance outcomes [4]. Low academic achievement, delayed graduation, and attrition from computing-related programmes are often the consequences of poor performance in programming courses, and thus the performance of students in computer programming has been the subject of increasing attention from researchers. Many factors can be used to predict success in programming, including prior educational background, self-efficacy, learning attitude, cognitive ability, motivation, learning environment, and demographic characteristics. Recent studies have suggested that demographic variables remain important in explaining variation in academic achievement and programming performance among university students.

One of the demographic variables that is often related to academic achievement is the level of education, which is usually operationalized in the universities by the year of study. Year of study indicates the progress of students in their academic programmes, and often determines the level of exposure of students to programming concepts, practical experience, problem solving skills and computing knowledge. Students are expected to have more programming competence at higher academic levels because they have been trained more, taken prerequisite courses, and gained practical experience in laboratory activities, projects, and internships. On the other hand, the lower level students may find it more difficult as they may not have exposure to programming concepts and lack experience in solving problems [20]. Programming education research suggests that students' cumulative learning experiences and academic progress have a significant impact on programming outcomes. In theory, educational level may have an impact on programming performance as the higher cognitive development, better self-regulation and more familiarity with computational thinking strategies could be the reasons. As university education evolves, students are presented with more complex programming tasks, opportunities for collaborative learning and project-based experiences that have the potential to improve their programming skills. Moreover, research in educational data mining has demonstrated that the trajectories of students across academic years are related to disparities in academic achievement and learning outcomes.

Another significant demographic variable is marital status. Marital status is considered a significant factor in educational research that can influence students' academic engagement, time management, psychological well-being, and overall academic performance. Married students may have additional family responsibilities, financial obligations, and childcare and work commitments that may compete with academic demands. These roles can either decrease learning opportunities or motivate students to achieve a higher level of academic outcomes due to increased commitment and goal orientation. On the other hand, single students might have more freedom in organizing their time for academic activities but might also face problems in social adjustment and academic motivation [7]. The link between marital status and educational achievement is thus complex and context-dependent.

In programming education, where students must spend many hours practicing, debugging and coding projects and laboratory exercises, marital status may have significant implications for academic performance. Most programming courses require a high degree of constant concentration, self-practice, and frequent use of technological resources outside of the standard class hours. Hence, the influence of family responsibilities and social obligations associated with marital status on students' capability to allocate enough time and effort for programming-related work may be

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considerable. Demographic studies have examined age, gender and educational background in relation to programming achievement [15]. However, marital status as a correlate of programming performance has received relatively little attention, especially in developing countries.

Globally, research on computer programming skills has focused more and more on how individual characteristics influence learning results. Programming achievement and learning experiences are still influenced by learner traits and demographic disparities, according to a recent comprehensive evaluation of programming education. Predictive research in computer science education has also shown that student-related factors continue to be significant predictors of programming course achievement. Enrolment in Computer Science and associated programs at federal universities in Nigeria has expanded due to the country's growing need for computing specialists. Nonetheless, there are still issues with students' performance in programming classes, which are still among the most challenging for undergraduates [16]. Programming performance has been found to be influenced by a number of elements, including the learning environment, instructional strategies, programming attitude, infrastructure, and demographics. However, there is still little empirical data on the precise impact of year of study and marital status on students' computer programming proficiency, especially in Federal Universities in South-Eastern Nigeria.

The South-Eastern region of Nigeria hosts numerous federal universities contribute significantly to the production of highly qualified graduates in computing-related fields. It is crucial for curriculum developers, instructors, university administrators, and legislators to comprehend the relationship between students' programming performance in these institutions and their educational attainment and marital status. The creation of focused interventions meant to assist a variety of student populations and raise programming achievement can be made easier with this knowledge. In light of this, the current study examines marital status and educational level (year of study) as demographic correlates of students' computer programming performance at Federal Universities in South-Eastern Nigeria. By offering actual data on how these demographic factors affect programming accomplishment in the Nigerian university setting, the study aims to add to the expanding body of knowledge on programming education.

➢ *Purpose of the Study*

The study is to examine educational level (year of study) and marital status as demographic correlates of students' performance in computer programming in Federal Universities in South-Eastern Nigeria. Specifically, the study sought to establish;

- the relationship between educational level (year of study) and students' performance in computer programming in Federal Universities in South-Eastern of Nigeria.
- the relationship between marital status and students' performance in computer programming in Federal Universities in South-Eastern of Nigeria.

➢ *Research Questions*

The study was guided by the following research questions;

- What is the relationship between educational level (year of study) and students' performance in computer programming in Federal Universities in South-Eastern?
- What is the relationship between marital status and students' performance in computer programming in Federal Universities in South-Eastern?

➢ *Hypotheses*

The study was guided by the following null hypotheses, all of which were tested at the.05 level of significance.

- Ho_1: There is no statistically significant relationship between students' educational level (year of study) and students' performance in computer programming in Federal Universities in South-Eastern.
- Ho_2: There is no statistically significant relationship between students' marital status and students' performance in computer programming in Federal Universities in South-Eastern.

II. LITERATURE REVIEW

➢ *Performance of Students in Computer Programming*

Students' performance in computer programming in school has been divergently captured by different scholars. Some see it as academic performance; some also captured it as academic performance, while others envisaged it as students' school performance- making it to become a source of concern to researchers, especially as the performance of students in schools is declining. However, the concept has been professionally captured; the main concern of this work is geared towards students' performance. Nevertheless, the views of other scholars were captured as they are in this work, though, paraphrased [19]. Student performance in computer programming refers to the degree of expertise, proficiency, and aptitude that a student acquires in this field of study. It typically involves understanding programming languages, algorithms, data structures, and problem-solving techniques, and applying them to create software and applications. Student performance can be assessed through various methods, such as quizzes, exams, assignments, and projects. The ultimate goal is to develop proficiency and expertise in computer programming, which can lead to career opportunities in software development, data science, and related fields.

Exams, assignments, and quizzes are typically used to gauge students' academic performance or progress. Academic performance in the context of this study is defined as a student's academic success after completing a course or subject through the use of a web-based learning environment or platform. By lowering fear and humiliation for students of all genders and shifting the facilitators' role to be more guiding, equal educational chances for students using the same platform would boost their enthusiasm in learning, claim [5]. However, [8] defines interest as the state

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in which a learner is absorbed, involved, focused, or gives their full attention to a task, item, or subject. Furthermore, when a student is engaged with a subject, the psychological resource will improve learning, which will guarantee improved academic achievement. The author further supported the idea that the purpose of any organization or academic institution should be to assist students in identifying their interests and to design curricula that will appeal to them, regardless of gender [3].

Academic performance and students' motivation are related [24]. [26], assert that in order to promote successful learning, student motivation is crucial. Given how crucial motivation is to students' academic success, the literature offers several instances of computer science education programs that try to improve students' motivation and understanding of computer programming. For instance, studied university students who were taught robotics programming and discovered that it improved their motivation and academic performance [14]. In a computer programming course, [23] discovered that using App Inventor programming and game development as an alternate method improved students' motivation and performance in fundamental programming abilities. [26], found that students who did not major in computer programming were more motivated when they used a variety of languages and tools.

Computer programming is a practical and cognitively demanding discipline. It requires logical reasoning, problem-solving skills, and abstract thinking. In Nigerian federal universities like the University of Nigeria, Nsukka (UNN), Nnamdi Azikiwe University (UNIZIK), and the Federal University of Technology, Owerri (FUTO), performance is usually assessed by continuous assessments, laboratory practical examinations, and end of semester written examinations. The programming introductory courses (Python, C++, Java, etc.) tend to have high failure or attrition rates in the world, due to the abstract nature of syntax and algorithmic structures [11].

- *Educational Level as a Demographic Correlate of Students' Performance in Computer Programming*

Individual's level of education, another demographic factor in this study, is considered because of the nature of this trait relative to the context of the computer programming. College courses and training programs completed by computer programming are often reviewed for combat and field application that support increased rank and pay [18]. Also, students look to their past educational experiences to better understand current situations [25]. It is unclear, however, whether computer programming see participation in continuing education as simply a means to an end or as a specific academic or cognitive growth experience.

Research has shown that students' proficiency in computer programming is influenced by their educational background. According to a study, first-year students expressed greater satisfaction with their computer programming education than fourth-year students, indicating a significant discrepancy in their performance evaluations [27]. Undergraduate and graduate students' satisfaction with Dire Dawa University's activities, particularly the provision of programming services, was found in a research carried out there in Ethiopia, did not differ significantly [10]. Students' performance was affected by the type of academic programs they participated in; as a result, school programs reflect different educational levels [13]. Research literature in this field appears to be lacking. Much research is required to uncover the connections between students' educational attainment and their success in computer programming classes, a gap that the current initiative was intended to fill.

- *Marital Status as a Demographic Correlate of Students' Performance in Computer Programming*

The demographic makeup of federal universities in Nigeria has undergone dramatic changes. The typical undergraduate population is single, but there is an increasing population of married students, especially in evening, sandwich or regular programs. Marital status has particular psychological, time and financial socio-economic dynamics that directly oppose or sustain rigorous academic requirements [12]. Marital status refer to a person's legal or social status with regard to marriage, such as being single, married, divorced, or widowed. Marital status is regarded as a significant demographic variable in higher education research because it may have an impact on students' time management, financial responsibilities, emotional stability, and academic dedication. Childcare, family care, financial obligations, and household administration are among the extra duties that married students frequently have to deal with. These obligations may have an impact on the amount of time and focus spent on academic pursuits, especially in challenging classes like computer programming that call for extensive practice and ongoing education.

Marital status is one of the demographic factors as correlates of students' performance in computer programming in some selected Universities in Enugu State of Nigerian. [1] Found that majority of the respondents that used computer programming most were found to be singles ranging from 54.8% to 76.3% in six of the seven universities. The author also discovered across the universities that students that used computer programming averagely were 19.9% among single undergraduates, computer programming was used more for academic tasks by single undergraduates than the other groups. [28], indicated that the singles showed higher use of internet more than the married students. One explanation for this might be that married students have other pressing issues to attend to such as domestic activities in form of caring for their children, husbands and other family members or relatives which may not give them enough time to use the facilities like their counterparts that are not married.

The influence of marital status on academic performance among business education students in North-West Nigeria. The study revealed that marital status significantly influenced students' academic achievement because married students often faced additional family and domestic responsibilities that affected their study schedules

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[32]. Similarly, [33], examined the influence of family background on the academic performance of married female students in Nigerian universities. The findings showed that family responsibilities and economic pressures affected the academic engagement of married students, although supportive family structures could enhance academic persistence and success.

III. THEORETICAL FRAMEWORK

➢ *Social Cognitive Theory [6]*

Social Learning Theory (SCT) was propounded by Albert Bandura in the year 1986. Social Cognitive Theory (SCT) upholds two core principles from social learning theory: individual learn through observing others' behaviors, and behaviors are acquired within social settings [6]. According to SCT, human motivation and behavior are predominantly guided by forethought [6]. It makes the argument that maintaining actions over time requires both personal self-control and environmental reinforcement. The theory also emphasizes reciprocal determinism, which postulates that environmental factors like facilitating conditions and individual factors like behavioral reactions and self-efficacy have an impact on each other. Two essential constructs are at the heart of SCT predictions: Self-efficacy (a measure of people's confidence in their capacity to carry out tasks) leading to desired outcomes) and outcome expectancies (indicating beliefs about potential consequences of actions). These constructs, alongside goals, socio-structural barriers, and facilitators, collectively shape behaviour. Throughout these phases, learners' cognitions (personal influences) steer their actions, while feedback from oneself and the environment (behavioral and environmental influences) can shape their cognitions.

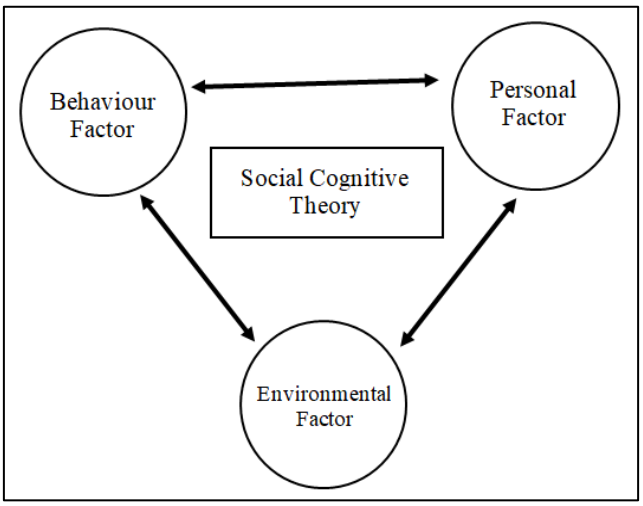

Fig 2 Social Cognitive Theory Factors
Source: Researcher (2025)

Therefore, according to Social Cognitive Theory, students' self-efficacy the conviction that they can succeed in computer programming is a crucial predictor of success in the current study. This belief is shaped by past experiences, vicarious experiences (observing others' successes), verbal persuasion, and physiological states. Gender stereotypes and cultural expectations can influence self-efficacy. For instance, if a particular gender is perceived as more suited to computer programming, students from that gender might have higher self-efficacy. Students learn by observing others, particularly models they perceive as competent and similar to themselves. These models can be teachers, peers, or role models in the field. Access to diverse role models in computer programming can significantly impact students' observational learning opportunities. For example, students from underrepresented groups might benefit from seeing successful individuals who share their background. Social Cognitive Theory offers insight into demographic and personal factors influencing computer programming performance, enabling educators and policymakers to develop interventions for equitable access and student success.

➢ *The Literature Gap*

While there are general studies on demographic factors and e-learning or open-access resource use in Nigeria [22], there is a clear dearth of recent empirical data specifically isolating computer programming performance as the sole dependent variable in the specific geographic and cultural setting of Federal Universities in South-Eastern Nigeria. Most localized studies lump programming together with general “Computer Science” or “ICT literacy” [30], thus underestimating the specific cognitive demands of writing executable code.

IV. METHODOLOGY

➢ *Design and Area of the Study*

The study adopted correlational survey research design. Correlational survey according to [9] seeks to precisely and methodically explain a population, circumstance, or phenomena. It involves gathering and examining data from a collection of individuals or objects, only a few things thought to be typical of the group as a whole. The design is used to elicit different opinions of people on an issue of wide concern. The independent variables (educational level and marital status) are innate student characteristics that have already occurred and cannot be experimentally manipulated. The design is deemed appropriate given that this study solicited information from students of computer science department on educational level and marital status as demographic correlates of performance of computer programming students in Federal Universities utilizing a standardized, structured questionnaire. The study is located in the South-Eastern geopolitical zone of Nigeria, which consists of five states: Abia, Anambra, Ebonyi, Enugu and Imo. The federal universities within the zone offer Computer Science and related computing programmes where students undertake computer programming courses as part of their academic curriculum. This region has a distinctive academic culture among its federal institutions, offering a socio-demographically diverse set of undergraduate computing students.

➢ *Population and Sample and Sampling Technique*

The accessible population is 5,400 undergraduate students enrolled in computing disciplines (e.g., Computer

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Science, Software Engineering, Cyber security) within the Federal Universities in South-Eastern Nigeria during the 2025/2026 academic session. These students are distributed across different years of study (100–500 levels) and marital status categories. These include: University of Nigeria, Nsukka (UNN), Nnamdi Azikiwe University, Awka (UNIZIK), Federal University of Technology, Owerri (FUTO), Michael Okpara University of Agriculture, Umudike (MOUAU) and Alex Ekwueme Federal University, Ndufu-Alike (AE-FUNAI). The sample size for the study was determined using Taro Yamane's (1967) formula:

$$n = \frac{N}{1+N(e)2}$$

Where:

n = Sample size
N = Population size (5,400)
e = Level of significance (0.05)

$$n = \frac{5400}{1+5400(0.05)2}$$

$$n = \frac{5400}{1+13.5}$$

$$n = \frac{5400}{14.5}$$

$$n = 372.4138$$

Approximately 372 students were constitute the sample size for the study.

A multistage sampling technique were employed. First, proportionate stratified sampling were used to distribute the sample across the selected Federal Universities. Secondly, students were stratified according to their year of study (100–500 levels). Finally, simple random sampling were used to select respondents from each stratum to ensure equal representation.

➢ *Instrument for Data Collection*

Data was collected using a researcher-developed instrument titled "Educational Level and Marital Status Questionnaire" (ELMSQ) and students' academic performance records in programming courses. ELMSQ has two sections; A and B. Section A seeks information on the demographic data of the respondents, while section B consisted of twenty (20) items questionnaire developed in two clusters. Each cluster covered one research question. Cluster A contained ten items which seeks to gather data regarding the relationship between Educational level (year of study) and students' performance in computer programming. Cluster B contained ten items which seeks to gather data regarding the relationship between marital status and students' performance in computer programming. The 20 items were used, a 5-point rating scale with equivalent values of 5, 4, 3, 2, and 1 for Very Strong Relationship (VSR), Strong Relationship (SR), Moderate Relationship (MR), Weak Relationship (WR), and Very Weak Relationship (VWR) was used to collect data from the 372 respondents

➢ *Validation and Reliability of the Instrument*

Three experts; one in Computer Science, one in Educational Measurement and Evaluation, and one in educational research were validate the instrument's face and content. Prior to administration, the instrument's quality and sufficiency enhanced based on their observations and recommendations. The experts were given the freedom to include or exclude any item they thought acceptable or inappropriate. The instrument's final draft was updated in response to their constructive criticisms and suggestions. A pilot test was conducted using 30 students from a Federal University in South-South outside the study area but with similar characteristics to the target population. The reliability of the instrument were determined using Cronbach's Alpha reliability coefficient. A reliability coefficient of 0.98 and 0.97 for cluster 1 and 2 respectively and 0.98 for overall, the result were considered acceptable for the study.

➢ *Method of Data Collection and Analysis*

The questionnaire was given to the respondents personally by the researcher with the help of five (5) qualified research assistants. Prior to data collection, permission were acquired from the appropriate university authorities. To guarantee a high retrieval rate, the completed questionnaires were gathered as soon as they are administered. Both descriptive and inferential statistics was used to analyze the collected data. The correlation coefficient for the Pearson Product Moment was employed for analyzing the research questions. Interpretation criteria: Very Strong Relationship (VSR) is equal to 0.80 ± 1.00, Strong Relationship (SR) is equal to 0.60 ± 0.79, Moderate Relationship (MR) is equal to 0.40 ± 0.59, Weak Relationship (WR) is equal to 0.20 ± 0.39 and Very Weak Relationship (VWR) is equal to 0.00 ± 0.19. At the.05 level of significance, the null hypotheses were analyzed using One-Way ANOVA Analysis of Variance (ANOVA). According to the decision rule, the null hypotheses were upheld if the significant value (p-value) was equal to or greater than the α-value (0.05); if not, they were discarded. SPSS, 27 was used for the analysis.

V. RESULTS AND DISCUSSION

➢ *Research Question One*

What is the relationship between educational level (year of study) and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria?

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Table 1 Correlation of the Relationship between Year of Study and the Students' Performance in Computer Programming.

	Year of Study	Average Students' Scores	N	Remark
Year of Study	1	0.010	372	Very Weak Relationship
Average Students' Scores	0.010	1		

Field work, 2026

Data analyzed in Table 1 showed that there is very weak positive relationship (rpb = 0.008) between year of study and students' performance in computer programming. Inference drawn from the result is that year of study does not affect students' performance in computer programming in Federal Universities in South-Eastern of Nigeria.

➢ *Hypothesis One*

- Ho_1: There is no statistically significant relationship between year of study (educational level) and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria**.**

Table 2 ANOVA Analysis of No Statistically Significant Relationship between Educational Level (Year of Study) and the Students' Performance in Computer Programming.

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	0.005	1	0.005	0.003	0.955	**NS**
Within Groups	66.689	370	1.419			
Total	66.694	371				

Keywords: Sig. = Significant level/exact probability value, NS = Not Significant, Df = Degree of Freedom, and F = ANOVA test statistic.

Field work, 2026"

The Analysis of Variance (ANOVA) of the statistically Table 2 shows a substantial link between the students' educational level (year of study) and their proficiency in computer programming. Furthermore, the table demonstrated that the significance level of 0.955 for the F-value (0.003) was higher than the 0.05 threshold. Accordingly, the mean responses of computer science students in South-Eastern, Nigerian educational institutions, show no statistically significant relationship between educational level and the performance of students in computer programming courses. Therefore, the null hypothesis (Ho_1) is validated because the associated probability value (0.955) is greater than the 0.05 threshold for testing the hypothesis.

➢ *Research Question Two*

What is the relationship between marital status and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria?

Table 3 Correlation of the Relationship between Marital Status and the Students' Performance in Computer Programming

	Marital Status	Average Students' Scores	N	Remark
Marital Status	1	-0.8421	372	Weak Relationship
Average Students' Scores	-0.8421	1		

Field work, 2026

Data analyzed in Table 3 showed that there is weak negative relationship (rpb = -0.362) between marital status and students' performance in computer programming. Inference drawn from the result is that marital status does not affect students' performance in computer programming in Federal Universities in South-Eastern of Nigeria.

➢ *Hypothesis Two*

- Ho_2: There is no statistically significant relationship between marital status and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria.

Table 4 ANOVA Analysis of No Statistically Significant Relationship between Marital Status and the Students' Performance in Computer Programming

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	8.980	4	2.245	1.711	0.165	**NS**
Within Groups	57.714	367	1.312			
Total	66.694	371				

Keywords: Sig. = Significant level/exact probability value, NS = Not Significant, Df = Degree of Freedom, and F = ANOVA test statistic.

Field work, 2026

The outcome in Table 4 displays the Analysis of Variance (ANOVA) of the statistically significant relationship between marital status and the students' performance in computer programming. The Table further

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revealed that the F-value (1.711) reached a significance of 0.165 which is higher than the significance level of 0.05. Therefore, the mean replies of computer science students in South-Eastern of Nigerian schools of education, showing there is no statistically significant correlation between students' marital status and their performance in computer programming classes. Because the relevant probability value (0.165) is greater than the 0.05 threshold set as the level of significance for testing the hypothesis, the null hypothesis (Ho_2) is thus maintained.

VI. DISCUSSION OF FINDINGS

The findings revealed the relationship between educational level (year of study) and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria. The finding that year of study has a very weak favorable correlation between students' performance and their academic year of study in computer programming affirms the findings [34] that year of study can influence student performance in computer programming at the university level. Generally, as students' progress through their program, their programming skills and performance tend to improve due to increased experience and exposure to more complex concepts. Research has shown that students' proficiency in computer programming is influenced by their educational background. According to a report, there was a significant discrepancy in the performance evaluations of the students; first-year students expressed greater satisfaction with their computer programming education than did fourth-year students [27]. The analysis of hypothesis three shown in Table 2 indicated the comparison of the respondents (computer students) on ANOVA analysis at the 0.05 level of significance and with 48 degrees of freedom was used to examine the link between the students' performance in computer programming courses in education colleges and their year of study (educational level). The determined p-value exceeded the significance level of 0.05. As a result, the null hypothesis was maintained at the 0.05 level of significance, showing that there was no statistically significant correlation between the students' computer programming performance in Federal Universities in South-Eastern of Nigeria and their year of study (or educational level).

The findings revealed the relationship between marital status and the students' performance in computer programming in Federal Universities in South-Eastern of Nigeria. Finding of marital status has a weak negative relationship between marital status and the computer programming skills of students' support the conclusions of [12] who examined the influence of marital status and religious affiliation, as factors of academic performance among Nigerian education majors. Ekundayo reported that marital status had no substantial impact on students majoring in education's academic performance. According to [17] stated that marital status is a very interesting trend of influence on the effectiveness of male and female teachers. Similar observations were reported by [2] and [29]. On the contrary, [31], reported that marital status did not have any significant influence on the teacher effectiveness which is consistent with the current study's findings. Found that majority of the respondents that used computer programming most were found to be singles ranging from 54.8% to 76.3% in six of the seven universities. The author also discovered across the universities that students that used computer programming averagely were 19.9% among single undergraduates, computer programming was used more for academic tasks by single undergraduates than the other groups [1]. [28], indicated that the singles showed higher use of internet more than the married students. One explanation for this might be that married students have other pressing issues to attend to such as domestic activities in form of caring for their children, husbands and other family members or relatives which may not give them enough time to use the facilities like their counterparts that are not married. The analysis of hypothesis four shown in Table 8 indicated the comparison of the respondents (computer students) on the relationship between marital status and ANOVA analysis was used to evaluate the students' performance in computer programming courses at education colleges at the 0.05 level of significance and with 48 degrees of freedom. The determined p-value exceeded the significance level of 0.05. As a result, the null hypothesis was maintained at the 0.05 level of significance, demonstrating that there was no statistically significant correlation between the students' computer programming proficiency in Federal Universities in South-Eastern of Nigeria and their married status.

VII. CONCLUSION

This study focuses on educational level and marital status as demographic correlates students' performance in computer programming in Federal Universities in South-Eastern, Nigeria. According to the study's results, students' performance in computer programming at federal universities in South-Eastern Nigeria was only slightly correlated with their marital status and educational level (year of study). The results of the investigation showed a very poor (weak) correlation between students' computer programming performance and their educational level (year of study). This implies that students' programming performance is not significantly impacted by advancement from one academic year to the next. Higher level students might take more computer-related courses, but this exposure doesn't seem to be enough to significantly boost programming performance. Students' performance in computer programming may therefore depend more on factors other than their year of study.

In a similar vein, the study found a slight correlation between students' computer programming performance and their marital status. This suggests that a student's academic performance in programming courses is not significantly impacted by whether they are single, married, divorced, or widowed. Although some students may experience increased demands due to marital duties, the impact on programming performance was shown to be negligible. As a result, students' success in computer programming cannot be strongly predicted by their marital status. The results suggest

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that demographic traits like marital status and educational attainment only slightly influence differences in programming performance, underscoring the need for researchers and educators to concentrate more on academic, psychological, technological, and motivational factors that may have greater effects on students' programming outcomes.

RECOMMENDATIONS

➢ *Based on the Finding of this Study, the Following Recommendations are Appropriate:*

- Lecturers should refrain from believing that students in higher grades inherently have superior programming abilities because there is a very poor correlation between educational level and programming competence. Instead, kids at all levels should receive diagnostic tests and remedial assistance.
- Universities should offer flexible academic support, counselling services, and time-management training to help students reconcile academic commitments with personal and family obligations, even though there is only a modest correlation between marital statuses and programming success.
- Structured programming support programs should be established by federal universities, especially for first- and second-year students who frequently struggle to adjust to programming principles. As students advance through various academic levels, tutorials, mentoring programs, coding clinics, and peer-assisted learning activities should be arranged on a regular basis to boost their proficiency and self-assurance.
- Lecturers of computer programming should create instructional strategies that take into account the diverse practical and cognitive requirements of students at different academic levels. While lower-level students should receive basic help to enable steady skill growth and increased academic achievement, advanced students should be introduced to more challenging programming tasks.
- University administrations should provide flexible learning opportunities, such as online programming resources, recorded lectures, virtual laboratories, and extended access to computing facilities. These measures can help married students effectively balance family responsibilities with academic demands, thereby enhancing their performance in computer programming courses.
- Counselling units should regularly identify and support students whose demographic circumstances may affect their academic performance. Academic advisors can guide students, particularly married students and those in lower academic levels, on effective time management, study habits, and coping strategies for programming-related challenges.
- Lecturers should encourage collaborative programming activities, such as group projects, pair programming, coding competitions, and peer mentoring involving students from different academic levels and marital backgrounds. Such interactions can facilitate knowledge sharing, improve problem-solving skills, and enhance overall performance in computer programming courses.

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