RELATIONSHIPS BETWEEN SCHOOL-RELATED FACTORS AND COMPUTER SCIENCE LEARNING SELF-EFFICACY IN SENIOR SECONDARY SCHOOLS

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Abstract

The study examined was to investigate the relationships between school-related factors and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State. Four research questions were raised to guide the study and three null hypotheses were formulated and tested at a 0.05 level of significance. The research design adopted for the study was a correlation survey research design. The population of the study was 3641 which comprises of all the SS2 students in the 14 public senior secondary schools in Oredo Local Government Area of Edo State. The sample size of the study was 187 SS2 students selected from the 14 public senior secondary schools in Oredo Local Government Area of Edo State. The simple random sampling technique was used to the sample of the study. A structured questionnaire, titled "School-Related Factors and Computer Science Learning Self-Efficacy" was used in gathering data for the study. The instrument was validated by three experts one in Measurement and Evaluation, and two in Counseling Psychology. The reliability coefficient was established by measuring the internal consistencies of the items in the instrument, using Cronbach's Alpha statistics and it yielded a coefficient values of 0.70 for school-related factors and 0.76 for computer science learning self-efficacy. The Pearson's Product Moment Correlation (PPMC) and multiple regression was used for data analysis. The results revealed that students demonstrated high levels of self-efficacy on various aspects of computer science, such as confidence in performing tasks and applying knowledge to real-world situations. It was recommended, among others, that government should endeavor to provide professional development programmes for teachers in order to provide opportunities for teachers to posess the necessary skills and knowledge through ongoing professional development opportunities in computer science pedagogy and effective teaching methods.

Keywords: Computer Science, Learning Self-Efficacy, School-Related Factors, senior secondary schools, Students.

Introduction

Technology is almost an inevitable term, known in all field of work, sectors, professions and even education in the 21st century. This is because in most nations, technology has replaced traditional means of knowledge sharing. Today, technology integration has fundamentally altered how people think, work, and live. In order to help students to prepare for life in a knowledge society, schools and other educational institutions must think seriously about integrating Information and Communication Technology (1CT) into their curriculum. The economy is gradually depending on a high degree of ICT competence from its citizens in order to have access to fundamental services; therefore, learners need to have a substantial level of ICT knowledge, skills, and awareness if they are to succeed in the future. ICT use, for instance,

can benefit students in rural locations by allowing them to attend classes remotely and inspiring them to learn. In this regard, the potential of e-learning is quite encouraging, yet knowledge transmission is not only challenging but also expensive due to the differences between developed and developing countries. Students who have strong self-efficacy are confident in their ability to comprehend a lesson, to work through academic challenges, and to choose the most challenging courses.

Self-efficacy is the belief that one can function successfully in a particular circumstance. In the senior secondary context, a student's belief that he or she can succeed at particular tasks such as learning the material from academic textbooks in preparation for an examination as cognitive ability test can be viewed as self-efficacy and crafting an essay to respond to any inquiry. The National Policy on Education in 2008 introduced the 9-year basic education curriculum to achieve the goals of the Universal Basic Education (UBE) program. Thus, the Nigerian educational structure became 9-3-4, which means 9 years' basic education, 3 years' senior secondary school education and 4 years' tertiary education. The Senior Secondary School Examination (SSCE) is taken at the end of the SS 3. The West African Examination Council (WAEC) and National Examination Council (NECO) administer the examinations. Secondary school is a link between the primary and tertiary levels of education which students receive after primary education and before tertiary stage and prepare students for tertiary studies. In this regard, a key objective of pre-university instruction should be to increase students' self-efficacy, or their confidence about succeeding in tertiary institutions, in order to better prepare them for their post-secondary studies. Self-efficacy has been connected to traits that may assist students successfully in dealing with difficulties such as the transition from secondary to university education, in addition to being a predictor of achievement and retention (Els, Ellen & Wim 2017).

Uba (2006) conducted a study on strategies for enhancing the teaching and learning of computer in secondary schools in Ebonyi State. The result of the study revealed that for appropriate methodology, adequate facilities, employment of qualified teachers, establishment of cordial relationship between parents and teachers, instructional materials, practical task, monitoring of students' ability and the need for developing problem solving skills to boost students' learning abilities for teaching and learning of computer in secondary schools. A study by Andreas (2019) on teaching methods for computer science education in the context of significant learning theories answers to the questions of which teaching methods are suitable for school and should be applied in teaching individual subjects. The result of the study makes it clear that the importance of learning theories for certain teaching methods in computer science education is different. Moreover, the result is an important contribution to the development of a theory of teaching methods for computer science education, which is still lacking. Maruff, Gbolagade, Amos and Olawale (2011) carried out a research on instructional materials and students' academic achievement in physics. Findings revealed that there is a significant difference in the achievement of students taught using standard instructional materials, those taught with improvised instructional material and those in the conventional instruction. Students taught with improvised instructional materials obtained the highest achievement score at posttest (F=74.94), followed by those with standard instructional materials (F=63.07), while the control group scored the lowest (F=39.89). Also, there was no significant effect of gender on students' achievement in Physics although, females did better than males. Finally, there was no significant interaction effect of treatment and gender on student achievement in Physics. Sale (2016) worked on the place of instructional materials in quality teaching at primary school level in Katsina State, Nigeria. The results showed that teachers and students had realized the effectiveness of modern instructional materials in teaching and learning for the attainment of set objectives in the basic primary education policy.

Akomolafe and Olubunmi (2016) carried out a research on the impact of physical facilities on students' level of motivation and academic performance in senior secondary schools in South-West Nigeria. The result showed that there was a significant interplay between physical facilities and students' level of motivation and academic performance. This result is important to this study because if students are motivated through physical facilities, it would build and improve students' self-efficacy in learning

computer science. Osaruchi and Kalagbor (2021) conducted a research on perceived influence of school physical facilities on students' academic performance in public secondary schools in Rivers State. The findings of the study revealed that physical facilities in secondary schools include teaching facilities, learning facilities and recreational facilities. It also revealed indicated that teaching, learning and recreational facilities had both positive and negative impacts on the academic performance of the students. However, the researcher recommended that government should provide current teaching facilities; government, non-governmental organization or multinational oil companies should provide the students with learning facilities and government should ensure that there are recreational facilities in each of the public secondary schools in the state to enhance teaching and learning. Hinneh and Manful (2019) carried out a study on class Size and Academic performance of students in selected nursing and midwifery training colleges in the central region, Ghana. The sequential explanatory mixed methods design was used for the study. The study revealed that class size had an effect on the academic performance of the students, where students in small class size recorded higher performance than their peers in large classes. Joseph and Philias (2011) researched on class size and academic achievement of secondary schools in Ekiti, State, Nigeria. The results showed that there was no significant difference in the academic achievement of students in small and large classes from urban schools. ($t=1.49$;< $p0.05$). There was no significant difference between performance of students from rural large and rural small classes ($t=0.58$; 0.05).

Statement of the Problem

The pressure to catch up with the developed world in areas like global competitiveness is pushing education's importance up. Many people who want a college education had to fight for the few openings granted by public colleges prior to the development of e-learning. Those that received positions had to go through the conventional educational system, thus they had to apply for study leave. The traditional mode of instruction has been used to teach computer science in secondary schools in Nigeria. However, students' performance, particularly at the SSCE level, has continuously lagged behind. This can suggest that using a new teaching approach is not helping students learn. One issue that some senior high school computer science students have is poor performance. Another issue that secondary school students in computer studies are faced with is the laboratory. In the majority of secondary schools, there are not enough laboratories to serve the student population because management didn't have the funds to construct large computer laboratories. The evaluation of computer science packages, teaching methods, physical facilities which includes the classroom and size, application of instructional materials and accessibility of education, teaching and learning processes of students' performance in computer studies, students' self-efficacy are some of the major problems of computer packages for assessing students' learning. This has raised a lot of concerns and the need for the authors of this present study to investigate the relationships between school-related factors and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Purpose of the Study

The purpose of this study was to investigate the relationships between school-related factors and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Research Questions

The following research questions were raised to guide the study.

Research Question 1: What is the level of computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Research Question 2: What is the relationship between teaching methods and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Research Question 3: What is the relationship between instructional materials and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Research Question 4: What is the relationship between school facilities and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Research Hypotheses

The following null hypotheses were formed and tested at a 0.05 level of significance.

Research Hypothesis 1: Teaching methods do not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Research Hypothesis 2: Instructional resources do not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Research Hypothesis 3: School facilities are not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Methods

Research Design

A correlation survey design was used to achieve the general aim of this research. It was considered appropriate since the authors used the primary data gathered through a structured questionnaire to establish the relationships between school-related factors and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Population and Sampling Procedure

The population of this study was 3641 which comprised of all the SS2 students in the 14 public senior secondary schools in Oredo Local Government Area of Edo State (Source: Ministry of Education Office, 2023). The sample size was 187 SS2 students selected from the 14 public senior secondary schools in Oredo Local Government Area of Edo state. The simple random sampling technique was used to represent student population. The SS2 students were chosen because at this level of education they have started developing self-efficacy for what they want to become and the SS1 and SS3 students seem to be unstable due to the dwindling enrollment pattern.

Research Instrument

The instrument for data collection was a structured questionnaire. The structured questionnaire is titled "School-Related Factors and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools". Likert scale method was used with response format of VE = Very Effective, E = Effective, FE = Fairly Effective, IE = Ineffective and VIE = Very Ineffective valued as 5, 4, 3, 2 and 1 respectively. The second part of the questionnaire contained five (5) items on computer science learning self-efficacy with Likert scale response format of MLM = Most Like Me, LM = Like Me, PLM = Partially Like Me, UL = Unlike Me and MUM = Most Unlike Me. The response format is such that the respondents only have to tick an option that is most applicable to them from five options provided for each of the question.

Validation and Reliability of the Instrument

To determine the validity, the instrument was presented to three experts, one in Measurement and Evaluation, and two in Counselling Psychology for vetting and necessary inputs. This was to ensure the content and face validity of the instrument. To ascertain the reliability, 30 copies of the instrument were administered on students who were not part of the sample of the study. To ascertain the internal

consistencies of the items in the instrument, the data collected from the respondents were analyzed using Cronbach's alpha statistic, which yielded a coefficient values of 0.70 for school related factors and 0.76 for computer science learning self-efficacy. This implied that the Instrument was good enough and could be used to elicit responses from the respondents.

Data Collection and Analysis

The questionnaire was administered on students with the help of a research assistant. The respondents were given enough time to respond to the various items after which the questionnaire was retrieved immediately to avoid misplacement or mutilation on the instrument. Pearson's Product Moment Correlation (PPMC) and linear regression were used as statistical tools for data analysis. The PPMC was used to answer the research questions and the linear regression was used to test the research hypotheses. The decision rule for the use of PPMC statistic was based on a range of coefficient value (r) as recommended by Uzoagulu (2011) in the following order: Coefficient r-value between ± .4 and ± .6 means moderate correlation: ± .1 and ±.4 means low correlation; ±1.0 means perfect correlation; For the use of linear regression statistic, the probability p-value less than or equal to 0.5 implies significant (reject Ho) while probability p-value greater than 0.5 implies not significant (accept Ho).

Results

Answering Research Questions

Research Question 1: What is the level of computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Table 1: Summary of the Descriptive Statistics of the Level of Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

S/N	Items	N	Sum	S	Mean	Decision
1	Confidence in achieving most of the goals they have set for themselves in learning computer.	188	830	1.26	4.41	High
2	Certainty of success using the computer base test (CBT) for examinations.	188	773	1.40	4.11	High
3	Confidence in the ability to use the CoreDraw application software to draw very well.	188	666	1.54	3.3.54	Moderate
4	Comparative confidence of performing tasks (calculations) effectively using the Microsoft Excel spreadsheet software.	188	679	1.69	3.61	High
5	The hope to succeed at almost any computer program and software to which they set their minds to learn.	188	777	1.64	4.13	High

Table 1 showed that four of the indicators (1, 2, 4, & 5) of computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were high with the values of 4.41,4.11, 3.61, 4.13 in a 5-point rating scale, while one indicator (3) is moderately high with the value of (3.35) and their corresponding Standard Deviations were 1.26, 1.40, 1.69, 1.64 and 1.54 respectively. The Table showed the factors that were possibly responsible for the level of computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Research Question 2: What is the relationship between teaching methods and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Table 2: Coefficients of Partial Correlation between Teaching Methods and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State

Variables	N	Df	r	Remarks
Lecture method.	184	182	.094	Very low
Learners' centered method .	184	182	.283	Low
Demonstration method.	184	182	.179	Low
Project method.	184	182	.273	Low
Field-trip method.	184	182	.345	Moderate

Note. N = Total Population, df = Degree of Freedom, r = Pearson's Correlation.

Table 2 showed that the coefficients of partial correlation between teaching methods (lecture method, learners' centered method, demonstration method, project method and field-trip method) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .094, .283, .179, .273 and .345, which implied very low, low, low, low and moderate responses respectively.

Research Question 3: What is the relationship between instructional materials and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Table 3: Coefficients of Partial Correlation between Instructional Materials and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

Variables	N	df	r	Remarks
Computer gadget.	184	182	.358	Moderate
Pie chart.	184	182	.138	Low
Projector gadget.	184	182	.234	Low
White board marker.	184	182	.061	Low
Text books.	184	182	.249	Low

Note. N = Total Population, df = Degree of Freedom, r = Pearson's Correlation.

Table 3 showed that the coefficients of partial correlation between instructional materials (computer gadget, pie chart, projector gadget, white board marker, and text books) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .358, .138, .234, .061 and .249, which implied moderate, low, low, low and low responses respectively.

Research Question 4: What is the relationship between school facilities and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State?

Table 4: Coefficients of Partial Correlation between School Facilities and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

Variable	N	df	R	Remarks
Classrooms.	184	182	.657	High
Library.	184	182	.613	Moderate
Laboratory.	184	182	.622	Moderate
Sport complex .	184	182	.531	Moderate
Staff rooms.	184	182	.598	Moderate

Note. N = Total Population, df = Degree of Freedom, r = Pearson's Correlation.

Table 4 showed that the coefficients of the level of partial correlation between school facilities (classrooms, library, laboratory, sport complex, and staff rooms) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .657, .613, .622, .531 and .598, which implied high, moderate, moderate, moderate and moderate responses respectively.

Testing Research Hypotheses

Research Hypothesis 1: Teaching methods do not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Table 5: Coefficients of Regression Analysis on the Relationships between Teaching Methods and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

Variable/Moderator	UC		SC	t	Sig.	Decision
	B	SE	Beta			
Learner centered method.	.995	.250	.280	3.98	.000	Reject Ho
(Constant)	18.895	2.505		7.54	.000	
Demonstration method.	.688	.280	.177	2.46	.015	Reject Ho
(Constant)	20.555	2.630		7.82	.000	The effect of the method is significantly influenced by class and class size.
Class	-2.160	.968	-.160	-2.23	.027	
Class size	.851	.414	.149	2.05	.041	
Project Method.	.801	.210	.270	3.82	.000	Reject Ho
(Constant)	22.297	2.187		10.19	.000	The effect of the method is significantly influenced by class and class size.
Class	-2.884	.954	-.213	-3.02	.003	
Class size	.781	.402	.136	1.94	.054	
Field Trip	.784	.158	.339	4.95	.000	Reject Ho
(Constant)	19.862	2.254		8.81	.000	The effect of the method is significantly influenced by class and class size.
Class	-1.909	.925	-.141	-2.07	.040	
Class size	.873	.393	.153	2.22	.028	
Lecture method	.273	.214	.096	1.28	.204	Don't reject Ho
(Constant)	23.795	2.225		10.69	.000	The effect of the method is significantly influenced by class.
Class	-2.676	1.011	-.198	-2.65	.009	

Note. UC = Unstandardized Coefficient, SC = Standardized Coefficient, SE = Standard Error, Sig. = Significant.

Table 5 showed that the coefficients of multiple regression between teaching methods (learners' centered method, demonstration method, project method, field-trip method, and lecture method) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .280, .177, .270, 339 and .096 respectively with t values of 3.98, 2.46, 3.82, 4.95 and 1.28, respectively. And all the t values apart from the t value for lecture method (1.28) were significant, with p-values ranging from .00 to .05. The effects of demonstration method, project method and field-trip were significantly moderated by classroom and class size while learners' centered method is not significant and the effect is significantly moderated negatively by class.

Research Hypothesis 2: Instructional resources do not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Table 6: Coefficients of Linear Regression Analysis on the Relationships between Instructional Resources and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

	UC		SC			
Variable/Moderator	**B**	**SE**	**Beta**	**t**	**Sig.**	**Decision**
Computer gadget.	1.155	.223	.351	5.180	.000	Reject Ho
(.Constant)	18.540	2.336		7.935	.000	The effect of the resources is significantly influenced by class.
Class	-2.133	.916	-.158	-2.328	.021	
Pie chart.	.351	.187	.137	1.878	.062	Don't reject Ho
(Constant)	22.361	2.396		9.331	.000	The effect of the method is significantly influenced by class and class size.
Class	-2.099	.980	-.155	-2.143	.033	
Class size	.828	.418	.145	1.982	.049	
Projector gadget.	.610	.188	.233	3.248	.001	Reject Ho
(Constant)	20.943	2.372		8.830	.000	The effect of the resources is significantly influenced by class and class size.
Class	-2.073	.957	-.153	-2.167	.032	
Class size.	.953	.412	.166	2.311	.022	
White board marker.	.192	.233	.060	.826	.410	Don't reject Ho
(Constant)	23.400	2.400		9.752	.000	The effect of the material is significantly influenced by class.
Class	-2.347	.979	-.174	-2.398	.018	
Text books.	.786	.227	.244	3.470	.001	Reject Ho
(Constant)	20.550	2.386		8.613	.000	The effect of the materials is significantly influenced by class.
Class	-2.095	.952	-.155	-2.200	.029	

Note. UC = Unstandardized Coefficient, SC = Standardized Coefficient, SE = Standard Error, Sig. = Significant.

Table 6 showed that the coefficients of multiple regression between instructional materials

(computer gadget, pie chart, projector gadget, white board marker, and text books) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .351, .137, .233, .060 and .244 with t values of 5.18, 1.88, 3.25, .83 and 3.47, respectively. And all the t values apart from the t values for pie chart and white board marker were -1.37 and .060 respectively were significant, with the p value at .00. The effect of three instructional resources such as computer gadget, white board marker, and text books were significantly moderated by class while the effects of pie chart and projector gadget were significantly moderated by class and class size.

Research Hypothesis 3: School facilities are not significantly associate with computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State.

Table 7: Coefficients of Linear Regression Analysis on the Relationships between School Facilities and Computer Science Learning Self-Efficacy Among Students in Senior Secondary Schools in Oredo Local Government Area of Edo State.

	UC		SC			
Variable/Moderator	**B**	**SE**	**Beta**	**t**	**Sig.**	**Decision**
Classrooms.	2.457	.209	.648	11.752	.000	Reject Ho
(Constant)	12.168	1.958		6.215	.000	The effect of the facility is significantly influenced by class
Class	-1.591	.742	-.118	-2.144	.033	
Library.	1.797	.172	.605	10.457	.000	Reject Ho
(Constant)	14.731	1.970		7.478	.000	
Laboratory	1.764	.165	.614	10.714	.000	Reject Ho
(Constant)	15.685	1.907		8.224	.000	
Sport complex.	1.862	.220	.528	8.449	.000	Reject Ho
(Constant)	16.095	2.107		7.639	.000	The effect of the facility is significantly influenced by class
Class	-1.916	.833	-.142	-2.301	.023	
Staff rooms.	1.457	.145	.589	10.055	.000	Reject Ho
(Constant)	17.047	1.912		8.914	.000	The effect of the facility is significantly influenced by class and class size
Class	-1.613	.790	-.119	-2.042	.043	
Class size	.656	.335	.115	1.960	.052	

Note. UC = Unstandardized Coefficient, SC = Standardized Coefficient, SE = Standard Error, Sig. = Significant.

Table 7 showed that the coefficients of multiple regressions between school facilities (classrooms, library, laboratory, sport complex, and staff rooms) and computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were .648, .605, .614, 528 and .589 respectively with the t values of 11.75, 10.46, 10.71, 8.45 and 10.06, respectively. And all the t values were significant with the p value at .00. The effect of two school facilities such as classrooms and sport complex were significantly moderated by class while the effect of staff rooms was significantly moderated by class and class size.

Discussions

This present study investigated some school-related factors that could computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State. The study showed that four out of five of the indicators of computer science learning self-efficacy among

students in senior secondary schools in Oredo Local Government Area of Edo State were high with the values of 4.41, 4.11, 3.61, 4.13 in a 5-point scale respectively and one indicator were moderately high (3.35) and their corresponding Standard Deviations was 1.26, 1.40, 1.69, 1.64 and 1.54 respectively. The t-values of the indicators of computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State were 40.25, 29.83, 29.29 and 34.53 respectively and all of them were significant with p-values ranging from .00 to .01. The findings also revealed that students demonstrated high levels of self-efficacy in various aspects of computer science, such as confidence in performing tasks and applying knowledge to real-world situations. This suggests that schools within the local government are providing a relatively supportive learning environment for computer science subject.

The study also revealed a moderately high level of self-efficacy in overcoming challenges related to learning computer science subject. This suggests that while students are generally confident in their abilities to learn, they may face difficulties when confronted with complex problems or setbacks. This finding underscores the need for further efforts to support students in developing their problem-solving skills and resilience in the face of challenges. The study's findings resonate with existing research emphasizing the critical role of school-related factors in shaping students' self-efficacy. This finding aligns with the work of Osaruchi and Kalagbor (2021) who found that instructional facilities have impact on students' academic performance. This study's findings were also consistent with Akomolafe and Olubunmi (2016), who emphasized the need for adequate physical, human, and material resources in public schools to motivate students and enhance learning.

The second set of findings showed that the coefficients of multiple regressions between teaching methods (learners' centered method, demonstration method, project method, field-trip method, and lecture method) and computer science learning self-efficacy among students in senior secondary schools were .280, .177, .270, 339 and .096 respectively with t values of 3.98, 2.46, 3.82, 4.95 and 1.28, respectively. And all the t values apart from the t value for lecture method (1.28) were significant, with p values ranging from .00 to .05. The effects of demonstration method, project method, and field-trip method were significantly moderated by class and class size, while the learners' centered method is not significant and the effect is significantly moderated negatively by class. This finding aligns with the research of Uba (2006) and Andreas (2019) who found that teaching methods can significantly improve students' self-efficacy in computer studies.

The third findings showed that the coefficients of multiple regressions between instructional materials (computer gadget, pie chart, projector gadget, white board marker, and text books) and computer science learning self-efficacy among students in senior secondary schools were .351, .137, .233, .060 and .244 respectively with t the values of 5.18, 1.88, 3.25, .83 and 3.47, respectively. And all the t values (apart from the t values for pie chart and white board marker -1.37 and .060 respectively) were significant, with p values at .00. The effects of three instructional resources such as computer gadget, white board marker, and text books were significantly moderated by class while the effects of pie chart, projector gadget were significant moderated by class and class size. Evidence suggests that using improvised instructional materials can boost student self-efficacy in learning. This study's findings resonate with the research of Sale (2016) and Maruff et al. (2011) who demonstrated the effectiveness of modern instructional materials in achieving educational goals and highlighted the efficiency of both standard and improvised materials in teaching and learning physics.

Finally, this present study showed that the coefficients of multiple regressions between school facilities (classrooms, library, laboratory, sport complex, and staff rooms) and computer science learning self-efficacy among students in senior secondary schools were .648, .605, .614, 528 and .589 respectively with the t values of 11.75, 10.46, 10.71, 8.45 and 10.06, respectively. And all the t values were significant with the p values at .00. The effects of two facilities such as classrooms and sport complex were significantly moderated by class, while the effect of staff rooms were significantly moderated by class and class size. This finding support the study of Akomolafe and Olubunmi (2016) who emphasized the need

for adequate physical, human, and material resources in public schools to create a stimulating learning environment and foster student engagement.

Conclusions

This present study investigated some school-related factors that could computer science learning self-efficacy among students in senior secondary schools in Oredo Local Government Area of Edo State. The findings revealed that school-related factors play a crucial role in shaping students' confidence and motivation, significantly impacting their learning success in this vital field. The study highlighted the positive influence of well-equipped school facilities, diverse teaching methods, and positive teacher-student interactions in promoting student self-efficacy. Additionally, the findings suggested that class size and composition would moderate the impact of these variables, emphasizing the need for differentiated learning strategies and individual support.

Recommendations

Based on the findings, the following recommendations were made:

1. Government should endeavor to allocate sufficient funds and other resources to improve and maintain school facilities, which include computer laboratories, classrooms, and libraries,
2. Government and educational administrators should endeavor to provide teachers with professional development opportunities in computer science pedagogy and effective teaching methods in order to equip them with the skills and knowledge to implement diverse and engaging teaching strategies.
3. Educational administrators should have a regular review of computer science curriculum in order to ensure its alignment with current technological advancements, industry needs.
4. Teachers should endeavor to be encouraged to integrate technology into their lessons and utilize online learning resources in order to enhance student engagement and access to information and applications.
5. Teachers on the other hand, should endeavor to design assessment template that would accurately help in measuring students' progress in computer science knowledge and skills acquisition, and self-efficacy reinforcement.

References

Akomalefe, C. O., & Adesua, V. O. (2016). The impact of physical facilities on students' level of motivation and academic performance in senior secondary schools in Southwest Nigeria. *Journal of Education and Practice, 7* (4), 38-42.

Andreas, Z. (2019). Teaching methods for computer science Education in the Context of significant learning theories. International Journal of Information and Education Technology, 9, (7) 470-476.

Els, C. M., Ellen, P. W., & Wim, J. C. (2017). Factors that contribute to secondary school students' self-efficacy in being a successful university student. *Research in Post-Compulsory Education*, 535-555.

Joseph, S.O., & Philias, Y. (2011). Class size and academic achievement of secondary school in Ekiti State, Nigeria: *Asian Social Science,* 7(6), 170-175.

Hinneh, K., & Manfu, H.O. (2019). Class size and academic performance of students in selected nursing and midwifery training colleges in the central region, *Advances in Social Sciences Research Journal, 6*(9), 224–246.

Maruff, E.I., & Amos, D.C (2011). Learning environment and students' academic achievement in mathematics: Some Policy. *Europe Journal of Humanities and Social Sciences, 1*(2), 2220-9425.

Osaruchi, V., & Kalagbor, S. (2021). Perceived influence of school physical facilities on students' academic performance in public secondary schools in Rivers State: *International Journal of Innovative Social & Science Education Research,* 9(1), 46-59.

Sale, M (2016). The place of instructional materials in quality teaching at primary school level in Katsina Metropolis, Katsina State*: International Journal of Humanities and Management Sciences, 4* (2), 2320–4044.

Uba, E.A. (2006). Undertook a study on strategies for enhancing the teaching and learning of computer in secondary schools in Ebonyi State. *Journal of College Counselling, 10* (1), 6-18.

Uzoagulu, A.E. (2011). *Practical guide to. writing research project report in tertiary institutions*. Enugu: Cheston, Ltd.