MANAGEMENT OF PERSONALIZED LEARNING STRATEGIES AS CORRELATES OF ACADEMIC PERFORMANCE OF NCE STUDENTS IN STATE COLLEGES OF EDUCATION IN SOUTH EAST, NIGERIA

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Abstract

The study management of personalized learning strategies as correlate of academic performance of NCE students in state colleges of education in South east, Nigeria. The study adopted a correlational survey design. The population of this study was531 second year NCE students from state owned Colleges of Education in South East, Nigeria comprised of 65 students from Abia State College of Education, Technical Arochukwu, 105 students from Ebonyi State College of Education, Ikwo, 120 students from Enugu State College of Education Technical, 89 students from Imo State College of Education, IhitteUboma and 152 students from Nwafor Orizu College of Education, Anambra. The sample size for the study was 531 BCE students thus there was no sampling techniques since the population of the study was manageable and controllable by the researchers. The instrument for data collection was the researchers' development questionnaires titled Management of Personalized Learning Strategy Questionnaire (MPLSQ) and Academic Performance Questionnaire (APQ). MPLSQ and APQ were validated by three experts; two from school of education and one from school of business education, Abia State College of Education, Technical. Cronbach Alpha method was used to determine the internal consistency of MPLSQ and APQ which yielded a reliability alpha of .91 and .88 for respectively. five briefed research assistants helped in the administration and collection of the questionnaires. Data collected from the field were analysed using Pearson Product Moment Correlation Coefficient (PPMCC) to answer the research questions while Linear regression was used to test the null hypotheses that guided the study at 0.05 level of significance. Based on the analysis of the study, the following findings were made; that using of emerging learning technologies to a significant positive moderate extent relates to academic performance; that project-based learning has a significant positive moderate extent with academic performance. From the findings of the study, the researcher recommended amongst other that; Government in collaboration with college of education management should set up e-learning classroom to encourage the students in using emerging learning technologies for their academic purposes so as to meet with the students academic diverse need.

Keywords: *Personalized learning, use of emerging learning technologies, project-based learning, goal setting, and academic performance.*

Introduction

Personalized learning is amongst the learning strategies designed to assist and support learner in mastering and gaining in-depth knowledge, competence and skilled in their areas of specialization. Subban in Thomas (2023) defined personalized learning as using technology and digital tools to enhance student's learning at various levels. Traditionally, education has been viewed as a system that assumes that all students have the capacity to learn in the same way and pace. This traditional philosophical nature of education focused mainly on teaching methods, instructional materials, and assessment approach that are standardized and uniformed with little consideration for students' differences in their learning abilities, capacity, styles and needs. Bingham, Pane, Steiner, and Hamilton (2016) defined personalized learning as a technology-based instructional model designed to tailor instruction to student needs, strengths, and interests to promote mastery of skills and content. Spector (2014) averred that personalized learning involves instructional activities that support effective, efficient, and engagement of students with varying prior knowledge levels, backgrounds, and educational interests. In essence, students should be availing the privilege and opportunity to be participate in the design of their learning process, which would motivate and redirect educators' interest in reengineer their instructional strategies towards meeting with the needs of educational participants.

Personalized learning deals with individual learner meeting up with their desired needs abilities, and learning styles with regards to instructional activities. In essence this learning strategy acknowledges that every learner has their different learns different pace. Finkelstein, Knight and Manning (2019) argued that personalized learning strategies has the potential to transform education, such that it enables teachers to tailor instruction to individual students' needs and abilities. However, the traditional learning approach of learners over dependence on the teacher has faced a lot of criticisms for its deficiency to meet the diverse desired needs and expectations of the individual learner. Mandinach and Jackson (2019) noted that, by leveraging technology, adaptive assessments, and universal design principles, educators can create learning environments that are engaging, inclusive, and effective. It was on this bases that the educational managers, policy makers, stakeholder and other educators have made an innovative move towards the adoption of personalized learning strategies that tends to prioritize and enhance student-centred leaning in the global educational system.

Management of Personalized learning strategy is a comprehensive approach to student-centered education that prioritizes individual students' needs, abilities, and learning styles. By implementing personalized learning strategies, educators can improve student outcomes, address the needs of diverse learners, and prepare students for success in the 21st century. Bryk, Sebring, Allensworth, Luppescu, and Easton in Dziuban, Moskal, and Williams (2018) contended that personalized learning can lead to improved student outcomes in the areas of academic achievement, better attendance, and higher student motivation. Aligning with this assertation, Lai and Hannon (2018) noted that personalized learning is an effective measure that help to address the needs of diverse learners, including students with disabilities and language deficiency (English language learners).

Since personalized learning centres on educational experiences of individual learners pressing needs, interests, achievements and learning styles amongst other, there is need to create an engaging learning environment, promoting the development of critical and problem-solving skills, ensure self-paced discovery approach and self-reliance technique amongst learners so as to help them actualize their learning and academic desire. Shemshack and Spector (2020) are of the view that personalized learning encourages students to take ownership of their learning process essential to succeed. Using emerging learning technologies remains a component of personalized learning.

Using emerging technology to facilitate learning provided the learner with an opportunity to the exploring global information that are relevance to their academic desire and needs. This would also result to technology enhanced learning using digital tools and platforms to support personalized instruction. Emerging technology tend to enhance collaboration and instructional interaction amongst learners. Shabnam, et. al. (2020) noted that emerging technologies in education system facilitate and create group of people, enhance interaction and communication between the instructor, students, and further people, and also source to promote collaboration and resource sharing. Ryan in Shabnam et. al. (2020) defined emerging technology as the use of any system, and it's all accessories like; small and

temporary memories, videos, satellites, modem, phone meetings and means to prop up teaching learning system.

The prime goal of using learning technologies is to ensure easy access to information and quality instructional delivery using self-reliance approach and practical technique to make learning meaningful and productive. Singh and Samah (2018) averred that students in today global educational system frequently use technology for learning, especially emergent technological gadgets. In essence, the use of smartphones, computers, and other electro-digital devices by students provides them with internet access at their own space in sourcing for information that satisfies their information, career, and self-study needs. Project-based learning thus remain an issue of discourse in this study.

Project-based learning is an essential aspect of personalized learning that requires attention in the tertiary education. It improves students creative, innovative, collaborative, critical thinking and problem-solving skills amongst students. This personalized strategy in teaching supports students to meet their needs of as well as to improve in technical competence in the global issues. Thomas (2023) averred that this project-based learning process can be accomplished by integrating various instructional strategies, such as collaborative and individualized approach of carrying out research. Stafford-Brizard, Cantor, and Rose (2017) noted that collaborative learning allows students to take responsibility for their learning by working with their peers to reach a goal or solve a problem. PBLWorks (2023) shows that Project-based learning encourages students to explore questions about their subject matter, allowing for further exploration of topics and higher levels of understanding. This can also avail students with first-hand experience in exploring concepts or subject matter in details as well as to for deeper understanding and more meaningful connect.

Project-based learning helps in improving the analytical experience and competence of learners as well as to improve their knowledge of phenomenal contents that result to learner engagement in global issues. This strategy enables students to explore contemporary issues in their field of study, identify those problems and gain a deeper understanding of problem. Pane, Steiner, Baird, Hamilton, and Pane (2017) contended that project-based learning as a surrogate of personalized learning strategy could positively impact student outcomes in the in their performance. from the above assertion, the implementation of project-based learning strategy can promote student engagement, learning new thing, innovative competence, improve personal learning experience and brings learner to the real world of empirical evidence in resolving identified problems in their field of study. Assessing students' prior knowledge of identified problem and developing individualized expertise in selecting the appropriate research methodology among students remain a critical component of project-based learning strategy. Imperatively, there is need to facilitate meaningful interactions and collaboration among students in carrying out project-based learning so as to guide them properly and creative an inclusive, collaborative and active self-engaging learning environment. Setting learning goals is very relevant in achieving personalized learning.

Students' academic performance is largely dependent on the efficiency of their goal setting. Gsetting learning goals deals with the reflection of students' choice in terms of academic task, time invested in the school and effort attached or accorded to their perseverance academic task. This entails that goalsetting for learning activities amongst students enables them to carefully and mindfully handle learning deficiencies and challenges that they come across during the course of the learning process and instructional activities. In setting learning goals, the student is the sole custodian of every concept and imagination formed towards achieving such set goals. hen students have a role in forming the goals, they take ownership Ibrahim (2017) noted that students become even more independent when developing personal goals or ones that are specific only to themselves.

When goals are set by students, it assists both the students and the teacher educators to focused on the most essential and needed targets and how it could be achieved. Then, when goals are actualized, the students have a sense of accomplishment. Nunez in Shuaib, Tolulope and Oluwaseun (2021) aptly stated that providing students with a goal setting process or guidelines can help them more efficiently set and monitor the progress in reaching the designated goals. They further stated that guidelines here include stating the goal in written form, making the goals as concrete as possible, conceptualizing the

accomplishment of the goal, identifying the steps to obtain the goal, receiving educator feedback as to how they are progressing and communicating what worked and what did not.

Statement of the problem

The increase in academic disparity amongst NCE students in south east Nigeria has really affected the personalized learning strategies towards achieving good academic performance. ideally, personalized learning strategy should incorporate project-based learning, creating learning plan, using of emerging and setting of learning goals by the students which has the capacity to enhance their academic performance. these strategies of personalized learning thus would ensure that instructional activities that support effective, efficient, and engagement of students with varying prior knowledge levels, backgrounds, and educational interests. It would also avail the students the privilege and opportunity to be participate in the design of their learning process, which would motivate and redirect educators' interest in reengineer their instructional strategies towards meeting with the needs of educational participants. The relevance of personalized learning as one of the in the global education system tend to redirect the perception of educators to adopt personalized learning strategies that tends to prioritize student-centered education

The issue of traditional one-size-fits-all approach to education has been criticized for its inability to meet the diverse needs of students. These issues can be attributed to factors such as a lack of timely interventions when needed, poor adaptability and use of emerging learning technologies, poor or lack of learning plan, and lack of setting learning goals amongst students. This could also be attributed to lack pedagogy drive and direction which may result to failure in addressing individual student learning needs, and increasing levels of disengagement among learners, low self-awareness on the part of learners with reference to socioemotional matters. All these factors of poor personalized learning amongst students as observed by the researchers tends to risk the academic performance of students in colleges of education in south east, Nigeria.

However, personalized learning when strategically designed and ensure its awareness amongst students can impact positively on the students with regards to their academic performance. this would also support effective, efficient, and engagement of students with varying prior knowledge levels, backgrounds, and educational interests. This study emerged as a result of the researchers' observation on the behavioural attitude of NCE students towards personalized learning thus the problem of this study put in question form; to what extent does management of personalized learning strategies correlates with academic performance of NCE students in State Colleges of Education in South East, Nigeria?

Purpose of the study

The purpose of this study is to determine the relationship between management of personalized learning strategies and academic performance of NCE students in Colleges of Education in South East, Nigeria. Specifically, the objective of this study determines the;

extent to which using of emerging learning technologies relate with academic performance.

extent to which project-based learning strategy by students relate with academic performance.

extent to which setting learning goals and academic performance.

Research Questions

The following research questions guided the study. they are:

- to what extent does using of emerging learning technologies relate with academic performance?
- to what extent does project-based learning relate with academic performance?
- to what extent does setting learning goals relate with academic performance?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance to guide the study. they are

$H0_1$: there is no significant relationship between using of emerging learning technologies and academic performance.
$H0_2$: there is no significant relationship between project-based learning strategy and academic performance.
$H0_3$: there is no significant relationship between setting learning goals and academic performance.

Methodology

This aspect of the research detailed the procedure and process through which the study was carried out. The study employed a correlational survey design. The design helped the researcher to gather data concerning the existing condition so as to find out the extent to which management of personalized learning strategies relate with academic performance of NCE students in Colleges of Education in South East, Nigeria. The design was considered appropriate for this study because the researchers ascertained the relationship between the independent variable (Management of personalized learning) and dependent variable (academic performance) of the study. The population of this study was 531 second year NCE students from state owned Colleges of Education in South East, Nigeriacomprised of 65 students from Abia State College of Education, Technical Arochukwu, 105 students from Ebonyi State College of Education, Ikwo, 120 students from Enugu State College of Education Technical, 89 students from Imo State College of Education, Ihitte Uboma and 152 students from Nwafor Orizu College of Education, Anambra. The sample size for the study was 531 BCE students thus there was no sampling techniques since the population of the study was manageable and controllable by the researchers. The instrument for data collection was the researchers' development questionnaires titled Management of Personalized Learning Strategy Questionnaire (MPLSQ) and Academic Performance Questionnaire (APQ). MPLSQ and APQ were validated by three experts; two from school of education and one from school of business education, Abia State College of Education, Technical. Cronbach Alpha method was used to determine the internal consistency of MPLSQ and APQ which yielded a reliability alpha of .91 and .88 for respectively. five briefed research assistants helped in the administration and collection of the questionnaires. Data collected from the field were analysed using Pearson Product Moment Correlation Coefficient (PPMCC) to answer the research questions while Linear regression was used to test the null hypotheses that guided the study at 0.05 level of significance.

Decision Rule:

The strength of the relationship was established using Creswell (2008) correlation coefficient scale thus +/-.70 to 1.00 Strong/High Extent relationship, +/-.40 to .69 as Moderate/Medium Extent relationship and +/-.00 to .39 no correlation/ weak Extent relationship

Data Analyses

This aspect of the research presents the results of the data analyses and discussions of the findings of the study. It consisted of result presentation, testing of hypotheses, findings, discussion and recommendation. A total of 531 copies of the questionnaire were distributed to NCE students in Colleges of Education in South East, Nigeria. Four hundred and seventy-five copies of the questionnaire were completed and returned from colleges of education studies studied. This gave 89.5% of the return rate of the questionnaire administered to the respondents. More so, the remaining 56 copies of the questionnaire were not retrieved from the respondents which gave 10.5% mortality rate.

Research question one

To what extent does using of emerging learning technologies relate with academic performance?

Table1: Relationship between use of emergent learning technologies and academic performance

		UE T	AP
UET	Pearson Correlation	1	.538
	Sig. (2-tailed)		.000
	N	475	475
AP	Pearson Correlation	.538	1
	Sig. (2-tailed)	.000	
	N	475	475
R	R Squared	Adjusted R-Squared	
.54	2.92	29	

UET= using emergent learning technology; AP= Academic Performance (Correlation is significant at 0.05 level (2-tailed) N= number of respondents)

Data on table 1 indicates a positive moderate relationship between using of emerging learning technologies and academic performance. This is shown by the calculated correlation coefficient (r) of .54 which is within the coefficient limit of ± .40 to ± 60. This indicated that the variance observed in the academic performance of NCE students was accounted for by the use of emerging learning technologies. The Pearson R^2 of 29.2 also indicated that the use of emerging learning technologies predicts 29% of the variance observed in academic performance of NCE students in state colleges of education in south east, Nigeria.

Hypothesis One:

$H0_1$:There is no significant relationship between using of emerging learning technologies and academic performance.

Table 2: Regression Analysis of Correlation between use of emergent learning technologies and academic performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	104.858	1	104.858	192.789	.000[a]
	Residual	257.264	473	.544		
	Total	362.121	474			

Df= degree of freedom, F = F-calculated, Correlation is significant at the 0.05 level (2-tailed).

Data on table 2 shows that use of emergent learning technologies has significant relationship with academic performance of NCE students in state colleges of education in South East, Nigeria. This is shown by a probability -value of .000 which is less than the alpha value of 0.05. Therefore, the null hypothesis of no significant relationship between emergent learning technologies and academic performance was rejected.

Research Question Two

To what extent does project-based learning strategy relate with academic performance?

Table 3: Relationship between project-based learningand academic performance

		PBL	AP
PBL	Pearson Correlation	1	.560
	Sig. (2-tailed)		.000
	N	475	475
AP	Pearson Correlation	.560	1
	Sig. (2-tailed)	.000	
	N	475	475
R	R-Squared	Adjusted	R-Squared
	.560	31.4	31.2

PBL = Project-Based Learning; (AP) = Academic Performance (Correlation is significant at the 0.05 level (2-tailed) N= number of respondents.)

Data on table 3 indicates a positive moderate relationship between creating learning plan and academic performance. This is shown by the calculated correlation coefficient (r) of .56 which is positive and within the coefficient limit of ± .40 to ± 60. This indicated that the variance observed in the academic performance amongst NCE students in colleges of education in South East, Nigeria was accounted for by project-based learning by students. The Pearson R^2 of 31.36 also indicated thatproject-based learningpredicts 31% of the variance observed in academic performance of NCE students in colleges of education in south east, Nigeria.

Hypothesis Two

$H0_2$:There is no significant relationship between project-based learning and academic performance.
Df= degree of freedom, F = F-calculated, Correlation is significant at the 0.05 level (2-tailed).

Table 4: Regression Analysis of Correlation between Project-Based Learning and Academic Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	113.703	1	113.703	216.496	.000[a]
	Residual	248.418	473	.525		
	Total	362.121	474			

Data on table 4 shows a p-value of .000 which is less than the alpha value of 0.05. This means that there is a significant relationship between project-based learning and academic performance of NCE students in colleges of education in South East, Nigeria. Therefore, the hypothesis that there is no significant relationship between project-based learning and academic performancewas rejected.

Research Question Three

To what extent does setting learning goals relate with academic performance?

Table 5: Relationship between Setting learning Goals and Academic Performance

		SLG	AP
SLG	Pearson Correlation	1	-.098
	Sig. (2-tailed)		.033
	N	475	475
AP	Pearson Correlation	-.098	1
	Sig. (2-tailed)	.033	
	N	475	475
	R	R-Squared	Adjusted R-Squared
	-.098	.960	.960

SLG= Setting Learning Goals; AP= Academic Performance (Correlation is significant at the 0.05 level (2-tailed) N= number of respondents)

Data on table 5 indicated a negative very low extent relationship between setting learning goals and academic performance of NCE students in state colleges of education in south east, Nigeria.This is shown by the calculated correlation coefficient (r) of -.098 which is negative and within the coefficient limit of ± .00 to ± 20 whichindicated that the variance observed in the academic performance of students was accounted for by setting learning goals. The Pearson R^2 of 0.960 also indicated that academic performance of students predicts 0.96% of the variance observed in academic performance of NCE students in colleges of education in state colleges of education in south east, Nigeria.

Hypothesis Three

$H0_3$:There is no significant relationship between setting learning goals and academic performance.

Table 6: Regression Analysis of Correlation between Setting learning goals and academic performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.468	1	3.468	4.577	.033
	Residual	358.653	473	.758		
	Total	359.087	474			

Df= degree of freedom, F = F-calculated, Correlation is significant at the 0.05 level (2-tailed).

Data on table 6 shows a p-value of .033 which is less than the alpha value of 0.05. This means that there is significant relationship between setting learning goals and academic performance. Therefore, the hypothesis of no significant relationship between setting learning goals and academic performance was rejected.

Findings of the study

The findings of this study were as follows

1. using of emerging learning technologies to a significant positive moderate extent relates to academic performance.
2. project-based learning has a significant positive moderate extent with academic performance.
3. setting learning goal has a significant negative very low relationship with academic performance.

Discussion of the findings

Extent to which using emerging learning technologies relate with academic performance

The finding of this study on table 1 and 2 shows that using emerging learning technologies to a positive moderate extent correlates with academic performance of NCE students in state colleges of education in south east, Nigeria. The result further shows that use of emerging learning technologies significantly relates with academic performance. Shabnam and Muhammad (2020) argued that emerging technological based learning modifies the rationale of getting knowledge, it creates the atmosphere in which learners can develop the inner qualities and transversal competences and create the critical thinking for knowledge. In line with this assertion, Attewell in Uzma (2014) noted that students of secondary level who used and practice with emerging technology to contribute to already learned skill sets, improved their academic performance on standardized tests. In essence, performance of students academically depends on the educative process through personalized learning using emerging technologies to facilitate learning for self-actualization and meeting need.

Extent to which project-based learning by students relate with academic performance.

Finding of the study on table 3 and 4 shows that project-based learning to a positive moderate extent relate with academic performance. The finding of this study agrees with Redding (2018) argued that personalized learning plans (PLPs) assists individual students in their learning goals, needs, and preferences. This argument also aligned with the findings of the study of Özdemir-Baki, (2017) that project-based learning contributed positively to the process that teachers got to know their students better. FitzGerald, Kucirkova, Jones, Cross, Ferguson, Herodotou, Hillaire, and Scanlon, (2018) contended that personalized learning enables educators to provide an individualized approach to education tailored precisely to each learner's unique needs and interests. Tahir, Haruzuan M, Said, Daud, Vazhathodi, and Khan (2016) suggested that providing students, including those from minority backgrounds, with a learning environment with high expectations and assurance leads to higher academic achievement and improved motivation.

Extent to which setting learning goals and academic performance

Finding of the study on table 5 and 6 shows that setting learning goals to a negative low extent relate with academic performance of NCE students in state colleges of education in south east, Nigeria. The result further shows that setting learning goal significantly relate to academic performance of NCE students. Agreeing with the findings of the study, Sides and Cuevas (2020) in their study concluded that goal setting had no impact on the motivation of primary school students. Anastasia, and Maria (2022) contended that goal setting is a process by which students are guided on the next steps in their learning in order to achieve their learning goals.

Recommendations

Government in collaboration with college of education management should set up e-learning classroom to encourage the students in using emerging learning technologies for their academic purposes so as to meet with the students academic diverse need.

There is need for students orientation and seminar on the relevance of project-based learning towards the enhancement of academic performance.

NCCE should introduce self-directed learning as a course in colleges of education so as to broaden the scope of personalized learning towards assisting learners in setting learning goals and life goals for organisations policy.

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