E-ISSN: 2997-9439
American Journal of Education and Evaluation Studies
https://semantjournals.org/index.php/ AJEES

| Research Article

Check for updates

Investigating the Effect of Advanced Learning Strategies on the Skill Acquisition of Learners in Private Higher Institutions in the Northwest and Southwest Regions of Cameroon

Swirri Jacqueline Nche, Kimbikiri Eric Len. (PhD), Ambei Moses Chu (PhD)
Department of Curriculum and Pedagogy, Faculty of Education, The University of Bamenda, Cameroon

Abstract: The problem of skill acquisition among graduates from Cameroon's private higher institutions of learning especially those in the English-speaking regions of the country has been a matter of concern to the nation recently. As part of the contribution to arresting the situation, this study was designed to examine the contributions of Advanced Learning Strategies to The Skill Acquisition of Learners in Private Higher Institutions in Cameroon. To carry out the study, two research questions and two null hypotheses were formulated. After reviewing the literature relevant to the study, the survey research design was employed in the study. The study was carried out among private higher institutions of the English-speaking regions of Cameroon. The sample for the study consisted of 390 students and 10 lecturers. Data was collected using close-ended questionnaires and interviews. The study employed the ordinary least square regression techniques to analyze the data that were collected. The student t-test was used to test the significance of the hypothesis and the overall results revealed that differentiated learning and project-based learning all has statistically significant positive effect on the skill acquisition of learners of private higher institutions in the north west and south west regions of Cameroon. Based on the above findings, it was therefore recommended that Stakeholders in Cameroon should ensure a robust implementation of advanced learning strategies like differentiated learning and project-based learning in private higher institutions as tools to foster skill acquisition of learners in the country.

Keywords: Advanced learning strategies, skill acquisition, differentiated learning, project-based learning.

This is an open-access article under the CC-BY 4.0 license

INTRODUCTION

Globally, there is a greater attention to the issue of skill acquisition among learners of different institutions in the world recently. In the case of higher education, particularly within the context of private institutions in Cameroon's North West and South West Regions, developing practical

skills is crucial for preparing students for the workforce (Mbanya, 2019). This is because, the world is increasingly becoming competitive in the global market, making the ability to acquire and apply skills effectively paramount to the survival of the learners, especially upon completion of their study programs (Fombe & Fon, 2020).This explains why these institutions , have increasingly embraced advanced learning strategies such as differentiated learning, project-based learning to improve academic outcomes and prepare students for effective integration into society (Mbanya, 2019).

The concept of differentiated learning in Cameroon has evolved significantly, with great influence on the educational practices in the country. Here, the evolution of differentiated learning strategies has been shaped by historical, educational, and cultural factors, as well as by global and national educational reforms aimed at improving access to quality education (Fombe & Fon, 2020). By the early 2000s, differentiated instruction began to be formally recognized as an essential strategy for improving learning outcomes for all students. During this time, the National Curriculum was revised to accommodate a wider range of learning needs, and teacher training programs were updated to include the importance of differentiated teaching. The adoption of the Curriculum and Assessment Policy Statements (CAPS) in Cameroon began to provide a more structured approach to differentiation in classrooms, particularly through the use of varied teaching methods, assessment strategies, and learning materials.

Project-based learning in Cameroon's higher education sector reflects a broader shift toward competency-based education and skill development. Key policy reforms aimed at integrating hands-on, practical approaches to learning, emerging from educational conferences like the *Education Sector Strategy conference enhanced* the adoption of Project-Based Learning in the country (Tabe & Fonjong, 2019). This is because, for decades, the focus of higher education in Cameroon was on preparing students for white-collar jobs, with little emphasis on hands-on or project-based approaches. As a result, students were often ill-equipped to meet the demands of the labor market, particularly in technical and industrial fields. Project-Based Learning (PBL) was therefore introduce as a promising strategy to enhance skill acquisition, critical thinking, and innovation in the country and its usage and impact is increasingly evident in universities and vocational institutions across the country (Tabe & Fonjong, 2019). However, this approach has been affected by several challenges such as limited resources, inadequate infrastructure, and insufficient training for educators on implementing Project-based learning effectively.

In the North west and south west regions of Cameroon, higher institutions, especially those in the private sector have also made efforts in implementing key advanced learning strategies to enhance skill acquisition of learners in the area. These institutions although play a crucial role in providing accessible tertiary education, are plagued with limited resources and a lack of robust educational policies tailored towards skill acquisition of their learners (Tabe & Fonjong, 2019). There is therefore a persistent imbalance between the skills acquired by students in private institutions and the skills or competencies demanded by employers in Cameroon and beyond (Mbanya, 2019). Most learners upon completion from higher education institutions in the country continue to alienate themselves in front of government offices and other enterprises requesting for jobs showing signs of inadequate acquisition of skills for the labour market (Agborbechem, 2016). Such graduates have become a burden not only to their families but to the whole country with a spillover effect such as high crime rate, social unrest and a fall in moral standards of the country. It is for this reason that, the study is out to investigate the effect of advanced learning strategies on skill acquisition among learners of private higher institutions in the North West and South West regions of Cameroon as this is the bond of contention and focus of this study.

Background

Differentiated learning strategies are approaches designed to address the diverse learning needs, interests, and abilities of students in a classroom. The idea behind differentiated instruction is that

not all students learn in the same way or at the same pace. Therefore, it is crucial to tailor instruction to fit the varied learning profiles of each student. Scholars have defined differentiated learning strategies in different ways, with each definition emphasizing unique aspects of instructional practice. Tomlinson (2001) defines differentiated learning strategies as "a framework or philosophy for effective teaching that involves providing different students with different avenues to learning, often in the same classroom." According to Tomlinson (2001), differentiation can be achieved by varying the content, process, or product of instruction. For Example, A teacher teaching a history lesson on World War II may differentiate content by providing advanced readers with primary source documents and struggling readers with simplified summaries. For the process, students could be grouped based on their learning preferences—visual learners might create a timeline of events, while kinesthetic learners might act out key scenes. The product could be differentiated by having students choose between a written report, an artistic presentation, or a video documentary to showcase their understanding. The implication of this definition is that differentiation enables teachers to cater to the wide range of student abilities in a classroom. By varying content, process, and product, teachers can ensure that all students are engaged and appropriately challenged. Tomlinson's model promotes inclusivity by considering students' readiness, learning profiles, and interests. (Tomlinson, 2001).

Heacox (2012) expands on Tomlinson's model by emphasizing that differentiation is not a static or one-time event but an ongoing process that involves continuous assessment and adjustment. According to Heacox (2012), differentiated instruction involves three primary components: flexibility, variety, and continuous assessment. Heacox (2012) focuses on the idea that teachers should constantly adjust instruction to meet the needs of students based on ongoing formative assessments. For Example**,** A teacher could use ongoing assessments such as quizzes, class discussions, or student self-assessments to gauge the progress of students. Based on these insights, the teacher could adjust the pace of lessons, introduce additional resources, or provide more challenging tasks for advanced learners. A class of mixed-ability students may be grouped dynamically based on these ongoing assessments, ensuring that every student is appropriately supported or challenged. The key implication of Differentiation is not a one-size-fits-all approach. Teachers must be flexible, responsive to students' needs, and willing to adjust instruction continuously. This approach requires a strong commitment to formative assessment and personalized teaching, which may require additional time and effort for teachers but can lead to improved learning outcomes for diverse students **(**Heacox, 2012).

Project-Based Learning Strategies

Project- Based Learning Approach (PBLA) is a learner-centred learning approach, which involves learners in a constructive investigation through projects that necessitate critical thinking, creativity and collaboration. PBL is an active learning, which requires learners to use their higher order thinking skills through research under the teacher's supervision. Through PBL, learners are guided to design a project that involves problem identification and plan development (Wurdinger et al., 2007). Markham (2011), defines PBL as a model that organizes learning around projects, which are complex tasks, based on challenging questions or problems that involve students in design, problem-solving, decision-making, or investigative activities. This definition emphasizes the central role of active learning in PBL, where students take ownership of their learning by engaging in meaningful, real-world tasks. The Key Feature here are Real-world relevance and student-centered problem-solving (Wurdinger et al., 2007).

To add, Markham (2011), describes project-based learning as PBL integrates knowing and doing. Learners learn knowledge and elements of the core curriculum and also apply what they know to solve real life problems and produce valuable results. PBL learners take advantage of digital tools to produce quality, collaborative products. With project-based learning, education is focused on the learner not the curriculum. Project-Based Learning (PBL) enables learners to learn both

content and skills by solving authentic, real-world problems and reflecting on their experiences (Markham et al, 2003). Because the problems are complex, learners work in groups, where they pool their expertise and experience together with the complexities of the issues that must be considered.

However, Blumenfeld et al (2011) elaborate on the processes of PBL. They define project-based learning as a comprehensive perspective focus on teaching by engaging learners in investigation. Here, learners pursue solutions to nontrivial problems by asking and refining questions, debating ideas, making predictions, designing plans and/or experiments, collecting and analyzing data, drawing conclusions, communicating their ideas and findings to others, asking new questions, and creating artefacts. The basis of PBL lies in real life application of research. Learners working as a team are giving "Driven questions" to respond and they are given artefacts to present their gained knowledge (Blumenfeld et al, 2011). Artefacts in this sense may include a variety of media such as writing, art, drawings, representations, videos, photography, or technology-based presentations. Project-based learning has numerous benefits to the implementation of its strategies in the classroom; the in-depth understanding of concepts, improved communication and interpersonal skills, enhanced leadership skills, increased creativity (Larmer & Mergendoller, 2015).

Skill Acquisition

A skill can be defined as a task or group of tasks performed to a specific level of competency or proficiency which often use motor functions and typically require the manipulation of instruments and equipment (Larmer & Mergendoller, 2015). The term skill is most often used to describe qualifications, general skills and as part of one's competence. It is sometimes used as the trades or crafts which people engage in. Regardless of the context in which it is used, what is crucial is that skills acquired enhance an individual's capability to engage in a productive venture. According to Grant (2002), skill is a personal quality and has three key features: productivity, expandable and social. Skill is productive because it delivers essential services; expandable because skills are enhanced by training and development, while social indicate that skills are socially determined.

Skills acquisition is a process that leads one to the mastery of required skills. It is a tool that has been used by man through the ages to develop abilities to enhance his living standard. According to Isaac (2011), skills acquisition is an essential tool for eradicating extreme poverty. It increases the capability of the individual to attain self-sufficiency, seek paid employment, and is therefore pivotal in the fight to enhance the integration of young people in the society especially upon completion of their study programs in higher institutions of learning. Skills acquisition is the development of a new skill, practice or a way of doing things usually gained through training or experience (Okuda, 2015). It results in a positive change in the knowledge, attitude and skills possessed by an individual with multiplier effects on his income earning potentials and social standing in the society.Below is a conceptual diagram showing the dependent and independent variables of the study.

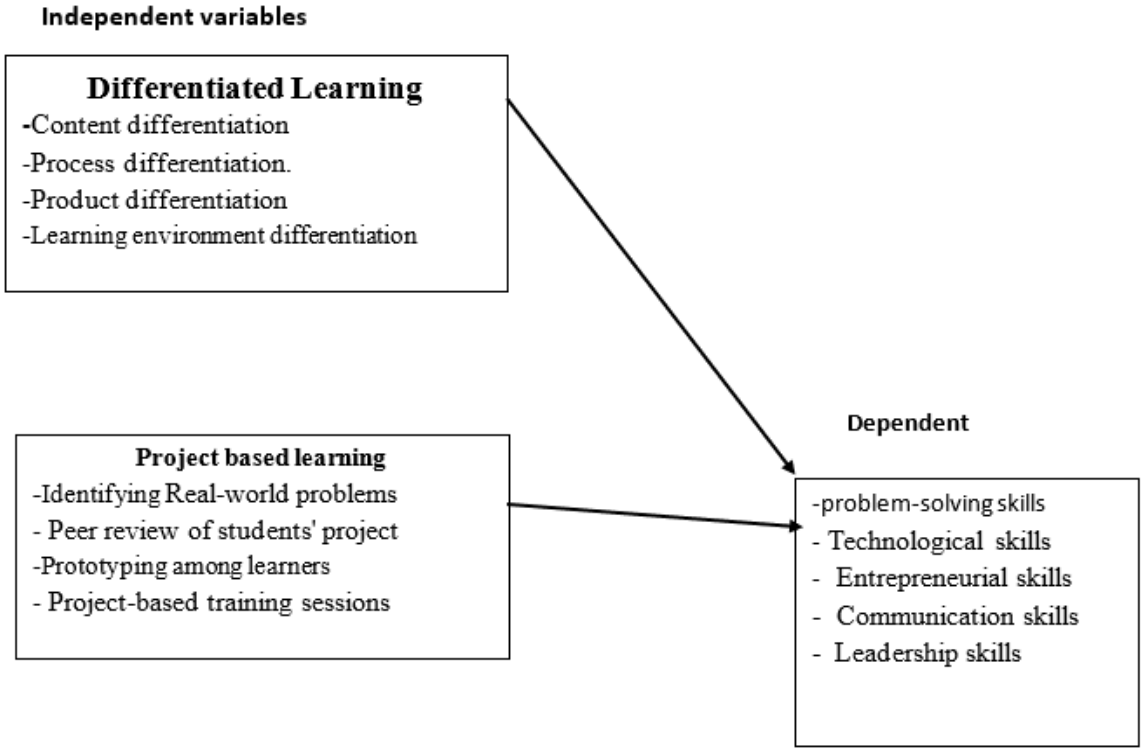

Figure 1: Conceptual diagram showing the dependent and independent variable of the study.

Source: Researcher (2024)

From figure one above, Advanced learning strategies are the independent variables and have a direct effect on the dependent variable which is skill acquisition as indicated by the arrows linking the boxes of the independent variable indicators to the box of the dependent variable. The independent variable of advanced learning strategies is further broken down into two indicators which are differentiated learning and project-based learning. Differentiated learning is captured using indicators like Content differentiation, Process differentiation, Product differentiation, and Learning environment differentiation while project-based learning is captured using key indicators like Identifying Real-world problems, Peer review of students' project, Prototyping among learners, and Project-based training sessions. The lone dependent variable of skill acquisition is captured here using indicators such as problem-solving skills, Technological skills, Entrepreneurial skills, Communication skills and Leadership skills.

REVIEW OF RELATED LITERATURE

Differentiated Learning strategies and Skill acquisition of learners

Kanyugi et al (2024) wrote on the Effect of Differentiated Instructional Approach on Learners' Participation and Academic Achievement in Biology in Public Secondary Schools in Mbeere North Sub-County, Keny. This study aimed to assess the effect of the Differentiated Instructional Approach (DIA) on Learner Participation and Academic Achievement in Biology in Public Secondary Schools. Quasi-Experimental Research Design was used in particular, Solomon Four Control Group Design. The target population was 2405 form two Biology students. Purposive sampling was used to select 8 Co-educational County Secondary Schools with a sample size of 360 students. Simple random sampling was used to select and assign the participating schools to Experimental and Control groups. Descriptive statistics was used to analyze the data, while the Statistical Package for Social Sciences (SPSS) software version 26 was used for data analysis. The results showed that there was a statistically significant difference in all three hypotheses, with the first objective giving ($F_{117.220}$, $p<0.05$), the second objective giving ($F_{54.049}$, $p < 0.05$) while the

third objective gave ($F_{65.417}$, $p < 0.05$) significant values. The results indicated that learners subjected to the Differentiated Instructional Approach did better than those instructed using Conventional Teaching Approaches. The study also concluded that DIA improved learners' Participation and Academic Achievement. The findings of this study would be significant to curriculum developers, educators, administrators and will also contribute to the knowledge base for the Differentiated Instructional Approach, forming the basis for further research

Wakhungu and Njoroge (2023) wrote on Differentiating Content as a Way of Enhancing Students' Self-Efficacy: A Study of Private Schools in Ruiru Sub-county. This study aimed to examine the effects of differentiated instruction on the self-efficacy of elementary school students. The investigation utilized the Theory of Multiple Intelligences and Self-Efficacy and a post-positivist methodology. In nine private primary schools in Ruiru Sub-County, Kiambu County, Kenya, 45 teachers and 1,022 pupils in upper primary levels (grades 6, 7, and 8) participated in the study. Using questionnaires, quantitative data was collected and analyzed using SPSS Student Version 14.0. The investigated aspect of differentiated instruction is content differentiation. It was discovered that differentiated content has a statistically significant impact on the self-efficacy of elementary school pupils. The establishment of comprehensive teacher professional development systems in private primary schools to equip teachers with the ability to effectively deliver differentiated instruction and build students' self-efficacy is one of the study's key recommendations. Among the areas for additional research is the conduct of a comparable study in public elementary schools. Additionally, longitudinal, and experimental studies can be conducted to examine the relationship between differentiated instruction and student self-efficacy in both private and public primary institutions. Additional recommendations include conducting research on other factors that contribute to the self-efficacy of elementary school students.

Project-based learning and skill acquisition

Migiro (2022) wrote on the effect of selected teaching methods on the acquisition of technical skills by mechanical engineering technician trainees: a case of national polytechnics in the western region of kenya. In his study, the effect of teaching methods on the acquisition of technical skills in three TVET institutions in Western Kenya was assessed. The study was governed by the following specific objectives; (i)Tto determine the effect of work-based teaching on the acquisition of technical skills, (ii)To examine the effect of tutorials on the acquisition of technical skills, (iii) To evaluate the effect of problem-based teaching on the acquisition of technical skills, (iv)To assess the effects of project-based teaching on the acquisition of technical skills, (v) To evaluate the effect of workshop teaching on the acquisition of technical skills for mechanical engineering students in national polytechnics in the western Kenya region and (vi)To evaluate the combined effect of work-based, tutorials, problem-based learning, project-based and workshop training in national polytechnics in western Kenya region. An explanatory research design was used to assess potential challenges/problems associated with the different teaching methods in a random sample of mechanical engineering trainees (248) and trainers (66) in three (Kisii, Kisumu and Sigalagala) national polytechnics in western Kenyan region. Data was collected using structured questionnaires which were self-administered. Inferential and descriptive analysis of data was done by application of SPSS version 25.0. From the results of this research, multiple regressions indicated that problem-based learning showed a positive significant effect of 20% in the acquisition of technical skills. Moreover, it was also observed that, a mix of all five teaching methods jointly and independently affected the acquisition of technical skills in mechanical engineering in national polytechnics. No single method, when used alone was adequate in imparting practical skills to students. The findings imply that national polytechnics should embrace an array of teaching methods such as problem-based learning, complemented by other approaches such as virtual learning and computer-aided learning and proactively formulate policies and resources which support the teaching methods above to improve the acquisition of technical skills among mechanical engineering students.

Zhang and Ma (2023) conducted A study of the impact of project-based learning on student learning effects: a meta-analysis study. The purpose of this study was to explore the effect of project-based learning on learning effectiveness and to explore other factors that may moderate this effect. The study was guided by two resesrch questions which are; Does project-based learning significantly improve students' thinking skills, academic performance, and affective attitudes compared to traditional teaching methods? How do different moderating variables (type of course, learning section, group size, class size, subject category, experiment period, country region.) affect students' learning effects? Meta-analysis is a quantitative analysis method that extracts and organizes multiple results of experimental or quasi-experimental studies on the same research question and then produces an average effect value by weighting the sample size, standard mean deviation, and other data from the existing research results and analyzes the effect value to obtain the results. The meta-analysis method has been widely used in education. This study compares and combines literature on the same research topic but with different research results by extracting data such as pre and post-test means, sample sizes, and standardized mean differences from relevant literature, while using the standard deviation (SMD), which can correct for small sample bias, as the effective value to indicate the degree of influence of project-based instruction on student learning outcomes. The study entered the relevant data into CMA meta-analysis software (Comprehensive Meta-Analysis 3.0) for data analysis. To ensure the quality of the study, this study strictly followed the meta-analysis criteria proposed by Glass (1976), which was mainly divided into four assessment procedures: literature collection, literature coding, effect size calculation, and moderating variable analysis, and finally a comprehensive effect size exploration and study results. The results of the study showed that compared with the traditional teaching model, project-based learning significantly improved students' learning outcomes and positively contributed to academic achievement, affective attitudes, and thinking skills, especially academic achievement.

Kibett and Katbari (2005) wrote on the Effects of Project-Based Learning on Students Performance of Higher Cognitive Skills in Secondary School Agriculture in Kenya. This study used a quasi-experiment design to investigate the effect of project-based learning on student performance of higher cognitive skills in secondary school agriculture. A total of 354 Form Three students drawn from ten (10) randomly selected secondary schools in Nakuru District of Kenya were assigned to three (3) treatment groups. Subjects were drawn from Nakuru District among four clusters of schools in areas far apart from each other. Schools in each area were randomly selected as follows: Naivasha-Gilgil (2 schools), Bahati-Subukia (3 schools), Njoro-Rongai (3 schools), Molo-Olenguruone (2 schools). A total of 354 Form Three students (219 males and 136 females), who were enrolled in agriculture classes were included in the study.

The variables of interest reported were the environment where the project-based learning was located and performance of higher cognitive skills. Project-based learning activities were located at the hOme-fa'rm (HFP), school-farm (SFP) and at the community-farm (CFP). In the home-farm project, the subjects worked in groups, identifying problems relating to the growing of beans, seeking information and applying solutions to individual home-farm. In the school-farm projects and community farm projects, the subjects were involved in similar activities as in home-farm projects except the location of the project was different. based on the location of the projects (HFP, SFP and CFP) and one control group. The students' performance skills variable was measured by an achievement test. The test comprised ten (10) items measuring higher cognitive skills (HCS). Two sets of tests were, developed, one was used as a pre-test and the other was used as a post-test. The tests were pre-tested using two schools with similar characteristics to the sample schools in the same district and the analysis of the tests using Cronbach's alpha co-efficient yielded an average of 0.727. Data was collected from the selected sample for three months. Both descriptive and inferential statistics were used for data analysis. And the results indicate that the students in project-based learning groups outperformed their counterparts in

regular classrooms in that their mean scores on a post-test measuring higher cognitive skills, were statistically significant, (at 0.05 p level) than that of the control groups. The paper suggests that teachers should be trained and encouraged to incorporate project-based learning in their planning of instruction.

Statement of the Problem

In recent years, there has been a growing global emphasis on equipping higher education learners with practical and transferable skills that align with 21st-century demands. In Cameroon, the rapid expansion of higher education, particularly in the private sector, has provided increased access to tertiary education. However, this expansion has not been matched by a corresponding improvement in the quality of learning experiences or in the skill acquisition outcomes of graduates (Njeuma et al., 2003). Private higher institutions in the Northwest and Southwest regions, despite their crucial role in addressing limited public university capacity, continue to face systemic challenges, including inadequate infrastructure, poor policy support for competency-based education, and limited integration of effective instructional strategies (Tabe&Fonjong, 2019).

Advanced learning strategies such as differentiated instruction, project-based learning (PBL), and self-directed learning (SDL), widely recognized as effective approaches for enhancing learner autonomy, critical thinking, and real-world problem-solving, have seen only partial or ineffective implementation in these institutions. Differentiated instruction remains underutilized due to classroom management constraints, time limitations, and resource scarcity (Ngassa et al., 2021). Similarly, PBL faces barriers like inadequate funding, poor access to digital tools, rigid curricula, and undertrained staff (Ngwa&Tchounga, 2015). SDL is further weakened by the dominance of traditional lecture-based approaches, digital inequities, and low student motivation, making collaborative and autonomous learning difficult to sustain. Consequently, there exists a significant mismatch between the skills that students acquire and those required by employers (Mbanya, 2019).

This persistent skills gap has resulted in an increasing number of graduates who are unprepared for the demands of the labor market. Many continue to seek jobs in the public sector without the entrepreneurial or technical competencies needed to thrive in a dynamic economy (Agborbechem, 2016). This growing disconnect contributes to broader societal issues such as youth unemployment, social unrest, and a decline in national productivity. The National Development Strategy 2020-2030 identifies skills development and education reform as central to Cameroon's long-term growth, yet the practical realization of these goals remains limited within private higher institutions. Therefore, this study seeks to investigate the extent to which advanced learning strategies are being applied in private higher education institutions in the Northwest and Southwest regions of Cameroon, and how these strategies influence students' acquisition of relevant skills for effective societal integration and employability.

General Objective

The main objective of this study is to examine the effect of advanced learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Specific Objectives

The specific objectives of this study are

To examine the effect of differentiated learning strategy on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

To determine the extent to which Project-based learning strategy affects skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Research Questions

What is the effect of Differentiated learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon?

What is the effect of Project Based learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon?

Research Hypothesis

The following research hypothesis was suggested to guide the study.

$H0_1$: There is no significant effect of Differentiated learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

$H0_2$: There is no significant effect of project-based learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon

Methodology

The study made use of the survey research design in investigating the subject under consideration. Geographically, the study was carried out among some selected private higher education institutions in the North west and south west regions of Cameroon. The target population of the study consisted of all students from registered private higher institutions in the Northwest and South West regions of Cameroon, the full-time lecturers in these institutions for the academic year 2024/2025. The accessible population are the final year students of four selected registered private higher institutions in the area and their lecturers (full time). The sample size was suggested from the accessible population with the use of the krejcie and Morgan (1970) table. The choice of using this table was because estimating the sample size was very easy and needed little information on the study population. According to the krejcie and Morgan table (1970) when a population size is 3743 and above at 95% confidence level and sampling error of 5%, the sample size is at 351 and more. Base on the above information, 400 respondents was deemed appropriate as the sample size for the study. It consisted of 390 students, and 10 lecturers.

The purposive sampling was used to select the schools to participate in the study. With this technique, 4 schools were purposefully selected which were, National Polytechnique university institute, St. Louise University institute, HIBMAT Buea and Biaka University institute. The choice of these schools was because they have existed for a long time with much experience in the teaching and learning process especially with the use of Advance learning strategies and can likely give credible responses to the variables under investigation.

The disproportionate sampling was used to get the number of respondents from each school to participate in the study. With this technique, schools perceived to have lower levels of skill acquisition of their learners were given more participants than the others. With this strategy, 120 respondents were selected from HIBMAT Buea, 70 from Biaka University Institute, 100 from St. Louis and 100 from National Polytechnique University Institute. This is based on the researcher's foreknowledge of the study population.

The simple random sampling was used to get the students to participate in the study. Ballot papers were designed with a yes and no inscription on them during the process of meeting the students. The researcher went to a class of undergraduate students of the schools concerned with the study which was made up of students from various departments. The objective of the study was explained to the students to get their interest and voluntary participation. Thereafter, the ballot papers were presented to them and any student who picked yes was considered to participate in

the study. This sampling technique is important here in that, it gives each respondent an equal chance to participate in the study without being biased.

As for the lecturers, due to the difficulty involved in knowing who is full-time and who is part-time, the snowball sampling technique was used to get the full-time lecturers to participate in the study. With this method, the few full-time lecturers that were identified were asked to link the researcher to other full-time lecturers who were then contacted to participate in the study. Primary data was collected mainly with the use of questionnaires and interviews. The questionnaires were constructed in conformity with the research questions and design to collect data from the students while the interviews were design to collect data from the lecturers. The reliability of the instruments was determine using the Cronbach alpha test for internal consistency while validity was obtained using expert judgment.

Method of data Analysis

Both descriptive and inferential statistics were used to analyse the data collected. For descriptive statistics, frequency counts, percentages, means and standard deviation were used while the data collected during the interview were analysed using a well demarcated thematic phase labelled thematic content analysis and precoding. The hypothesis was tested for significance using the student t-test while the ordinary least square regression technique was used to do the analysis with the help of SPSS software version 25.

FINDINGS AND DISCUSSION

Findings of his study are done based on the research questions and hypotheses under investigation

Research Question one: what is the effect of differentiated learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon?

To answer this question, data on differentiated learning strategies was collected from the respondents and the results are presented as follows

Table 1. Descriptive Statistics on Differentiated Learning Strategies

S/N	Items	SA	A	D	SD	SA/A	D/SD	Mean	Std Dev
4	Each lesson objective is clear to me	31	89	130	140	120	270	2.03	.952
5	My teacher uses a variety of teaching methods	73	78	172	67	151	239	2.40	.980
6	I am given choices in how I learn material	47	89	101	153	136	254	2.08	1.049
7	I am given choices in how I show what I have learned	62	89	204	35	151	239	2.46	.865
8	My teacher provides extra help when I need it	67	155	105	63	222	168	2.58	.955
9	My teacher provides support and guidance to me	121	117	136	16	238	152	2.88	.900
10	My teacher gives me feedback that helps me improve	121	133	63	73	254	136	2.77	1.083
11	I am encouraged to reflect on my learning	101	168	89	32	269	121	2.87	.894
12	I am motivated to learn in class	47	121	90	132	168	222	2.21	1.043

13	My individual needs are met	104	31	152	103	135	255	2.35	1.137
Overall Mean of Responses (Out of 40)								**24.63**	**4.344**

From Table 1, the overall mean score of 24.63 out of a possible 40 suggests a generally low to moderate implementation of differentiated learning strategies. This raises concerns about the extent to which instruction in these institutions is being adapted to meet the diverse learning needs of students. For differentiated learning to foster skill acquisition effectively, students should experience flexibility in content delivery, learning processes, and assessment methods. However, the data suggests that these conditions are not fully met.

A closer examination of individual items reveals specific areas of concern. Item 4, "Each lesson objective is clear to me," has the lowest mean score (2.03), implying that many learners are unclear about the objective of lessons. This lack of clarity may hinder skill acquisition, as learners cannot align their efforts with intended outcomes. Furthermore, Item 6, which examines whether learners are given choices in how they learn material, also records a low mean (2.08). This suggests that opportunities for learner autonomy and personalization which are key tenets of differentiated instruction, are limited. Without such choices, students may struggle to engage meaningfully or apply their strengths, thereby impeding skill development.

Similarly, Item 7, "I am given choices in how I show what I have learned," with a mean of 2.46, indicates that assessment strategies are not sufficiently flexible to accommodate different learning styles. This lack of varied assessment may restrict learners from demonstrating their competencies in ways that reflect their individual abilities and strengths.

On a more positive note, some aspects of differentiated instruction appear more developed. Item 9, "My teacher provides support and guidance to me," scores the highest mean (2.88), suggesting that many learners do receive direct assistance, which is essential for developing new skills. Additionally, Items 10 and 11, focused on constructive feedback (mean = 2.77) and encouragement to reflect on learning (mean = 2.87), also indicate moderate effectiveness. These practices are vital in differentiated environments as they promote metacognitive development, critical thinking, and self-improvement, which are central to skill acquisition.

Nonetheless, other important indicators such as Item 12, "I am motivated to learn in class" (mean = 2.21), and Item 13, "My individual needs are met" (mean = 2.35), suggest that learners' intrinsic engagement and the personalization of instruction remain underdeveloped. If students do not feel that their unique needs are addressed or that their learning experiences are motivating, the likelihood of meaningful skill development diminishes significantly.

Therefore, while certain supportive instructional elements such as teacher guidance, feedback, and reflective encouragement are moderately present, the data overall reflect a limited application of true differentiated learning strategies. The low scores on learner autonomy, goal clarity, and responsiveness to individual needs highlight significant gaps in instructional design. For differentiated learning strategies to truly enhance skill acquisition, educators in these institutions must adopt more learner-centered practices that provide clarity, choice, motivation, and tailored support, ensuring that all students have equitable opportunities to develop the competencies required for academic and professional success.

VERIFICATION OF HYPOTHESIS

Ho_1: There is no significant effect of differentiated learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Ha_1: There is a significant effect of differentiated learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Table 2. Model Summary on Differentiated Learning Strategies and the Skill Acquisition of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.374a	.140	.137	6.152

a. Predictors: (Constant), Differentiated Learning Strategies

As presented in Table 2, the Model Summary reveals a correlation coefficient (R) of .374, indicating a moderate positive relationship between differentiated learning strategies and skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon. The R^2 value of .140 suggests that approximately 14% of the variance in learners' skill acquisition can be explained by the use of differentiated learning strategies. Although this is not a large proportion, it is statistically meaningful and indicates a real effect. The adjusted R^2 value of .137 corrects for any overestimation of variance explained and reinforces the reliability of the model.

Table 3. ANOVA on Differentiated Learning Strategies and the Skill Acquisition of Learners

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2382.256	1	2382.256	62.941	.000[b]
	Residual	14685.488	388	37.849		
	Total	17067.744	389			

a. Dependent Variable: Skill Acquisition of Learners

b. Predictors: (Constant), Differentiated Learning Strategies

Table 3 presents the ANOVA results, which evaluate whether the regression model provides a better fit to the data than a model with no predictors. The F-statistic is 62.941 with a corresponding p-value (Sig.) = .000, which is less than the 0.05 significance level. This indicates that the regression model is statistically significant. Hence $F(1, 388) = 62.94$, $p < .005$ suggesting that the model significantly predicts learners' skill acquisition based on differentiated learning strategies.

Table 4. Regression Coefficients on Differentiated Learning Strategies and the Skill Acquisition of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.329	1.796		4.638	.000	4.799	11.860
	Differentiated Learning Strategies	.570	.072	.374	7.934	.000	.429	.711

a. Dependent Variable: Skill Acquisition of Learners

In Table 4, the regression coefficient (B) for differentiated learning strategies is 0.570, with a standard error of 0.072 and a t-value of 7.934. The associated p-value is .000, well below the 0.05 threshold. The 95% confidence interval for the B value ranges from 0.429 to 0.711, which does not include zero, further supporting the significance of the result. Hence, differentiated learning

strategies were a significant predictor of learners' skill acquisition, B = 0.57, SE = 0.072, t(388) = 7.93, p < .05, 95% CI [0.43, 0.71]. The positive coefficient implies that an increase in the use of differentiated learning strategies is associated with a corresponding increase in learners' skill acquisition.

Hypothesis Testing Decision

Given that the p-values in both the ANOVA and coefficient tables are less than 0.05, we reject the null hypothesis (Ho_1) and accept the alternative hypothesis (Ha_1). Therefore, we conclude that differentiated learning strategies have a statistically significant positive effect on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Analysis of Qualitative Findings for differentiated learning

Table 5: Effect of Differentiated Learning Strategies on Skill Acquisition

Category of Variable	Questioning Themes	Response Themes	Key Statements from Interviewees
Differentiated Learning Strategies	How do you tailor instruction to meet diverse learner needs?	Lecturers reported adjusting content, processes, and assessment methods based on students' readiness levels.	"I provide multiple versions of the same task, some with more scaffolding and others with open-ended prompts depending on the learner's level." (R3)
	In what ways do you see students benefiting from differentiated strategies?	Improved engagement, confidence, and increased participation, especially among weaker learners.	"I noticed that when students feel that tasks match their ability, they become more engaged and less frustrated." (R7)
	What challenges do you face implementing differentiation in practice?	Time-consuming planning, lack of training, large class sizes, and limited materials to support variation.	"It's difficult to implement effectively in large classes without support or access to differentiated resources." (R1)

The interview findings in Table 5 provide rich qualitative understanding into how differentiated learning strategies are being practiced and perceived by university lecturers, and how these practices relate to learners' skill acquisition in private higher institutions in the Northwest and Southwest regions of Cameroon. These findings help interpret the quantitative result that showed a moderate positive correlation between differentiated strategies and skill acquisition ($R = .374$, $R^2 = .140$, $p < .05$), offering a deeper understanding of the mechanisms and challenges behind the numerical data.

Firstly, the lecturers' responses reveal a clear commitment to meeting diverse learner needs through instructional differentiation. The adjustment of content, teaching processes, and assessment tasks according to students' readiness levels suggests that lecturers are not only aware of learner variability but also actively seek to address it. This approach is well illustrated by R3's statement: "I provide multiple versions of the same task, some with more scaffolding and others with open-ended prompts depending on the learner's level." Such practices align with contemporary pedagogical frameworks, which promote learner-centered approaches and individualized support to enhance learning outcomes. This reflects a shift away from traditional,

uniform instruction toward more flexible and inclusive teaching, which is particularly conducive to skill acquisition in diverse classroom settings.

The benefits of differentiated learning, as perceived by the lecturers, further reinforce the positive link between these strategies and skill development. Improved student engagement, confidence, and participation, especially among weaker learners, are emphasized across the responses. R7's observation that "students feel that tasks match their ability and become more engaged and less frustrated" highlights the psychological and motivational dimensions of effective learning. When learners are given tasks within their capability range, they are more likely to persevere, practice skills, and achieve mastery, thereby enhancing overall skill acquisition. This interpretation resonates with constructivist learning theories, particularly Vygotsky's concept of the Zone of Proximal Development, which supports instructional alignment to developmental levels.

However, the interviews also bring to light several practical and systemic constraints that limit the full implementation of differentiated instruction. The most prominent barriers mentioned by lecturers include the time-consuming nature of planning differentiated tasks, a lack of adequate professional development, overcrowded classrooms, and insufficient resources. These challenges point to a structural mismatch between pedagogical ideals and institutional realities. For instance, R1's concern that "it's difficult to implement effectively in large classes without support or access to differentiated resources", underscores how institutional constraints can dilute the effectiveness of even well-intentioned instructional strategies. Without adequate training, materials, and manageable class sizes, lecturers may find it challenging to sustain differentiation practices that are both pedagogically sound and practically feasible.

Taken together, these findings suggest that while differentiated learning strategies do contribute to improved skill acquisition, as evidenced by both qualitative feedback and statistical analysis, their impact is significantly moderated by contextual factors. The moderate R^2 value of .140 in the quantitative data implies that differentiated instruction alone accounts for a limited portion of the variation in learners' skills. This highlights the importance of addressing other interconnected variables such as institutional support, teacher capacity, and classroom management, just to mention but these, to maximize the effectiveness of differentiation.

Thus, the interview data deepen our understanding of how differentiated learning strategies function in real educational settings. They illustrate the promise of these strategies in supporting learner engagement and skill development, while also revealing the pressing need for systemic support to overcome implementation barriers. To fully realize the potential of differentiated instruction, educational institutions must invest in lecturer training, reduce classroom sizes, and provide appropriate learning resources that facilitate effective and equitable instructional practices.

Research Question Two: what is the effect of Project-based Learning Strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon?

To answer this question, data on project-based learning strategies was collected from the respondents and the results are presented as follows

Table 6. Descriptive Statistics on Project-based Learning Strategies

S/N	Items	SA	A	D	SD	SA/ A	D/S D	Mean	Std Dev
14	My teacher helps in identifying challenging problems.	78	105	39	168	183	207	2.24	1.203
15	I like to learn through	105	40	168	77	145	245	2.44	1.088

	identification of problems								
16	I investigate the topic in depth.	46	105	71	168	151	239	2.07	1.081
17	I am given enough time to complete the project effectively	104	39	169	78	143	247	2.44	1.088
18	I have control over the topic of the project	32	144	38	176	176	214	2.08	1.070
19	I choose how to demonstrate my learning in the project	119	104	94	73	223	167	2.69	1.096
20	I reflect on my learning during the project	169	70	66	85	239	151	2.83	1.204
21	I learn from my mistake during the project	111	101	31	147	212	178	2.45	1.255
22	I share ideas with my peer during the project	70	161	31	128	231	159	2.44	1.125
23	Presenting my project helps share what I learned	48	219	32	91	267	123	2.57	.980
Overall Mean of Responses (Out of 40)								**24.27**	**3.243**

From Table 6, the overall mean of responses (24.27 out of 40) suggests a moderate level of implementation of PBL strategies across the surveyed institutions. While this indicates that some elements of project-based learning are being practiced, the relatively modest mean combined with a standard deviation of 3.243 reveals inconsistency and possibly a lack of structured application across private higher institutions in the Northwest and Southwest regions of Cameroon.

A critical look at individual items uncovers both strengths and gaps in the way project-based learning is implemented. Item 20, "I reflect on my learning during the project," has the highest mean (2.83), indicating that reflection, an essential component of deep learning and skill acquisition, is relatively well-integrated in the project-based learning approach. Reflective practices enable learners to assess their understanding, monitor their progress, and identify areas for improvement, all of which contribute significantly to the internalization of new skills.

Similarly, Item 19, "I choose how to demonstrate my learning in the project," records a moderately high mean of 2.69. This suggests that students are often provided some autonomy in presenting their learning outcomes. Such flexibility supports the development of communication, creativity, and critical thinking, core skills associated with 21st-century education and aligned with the principles of project-based learning.

On the other hand, several critical components of effective project-based learning are underutilized. For instance, Item 16, "I investigate the topic in depth," has a notably low mean of 2.07. This indicates that learners may not be engaging in deep inquiry, which is fundamental to meaningful project-based work. Superficial engagement limits the opportunity to develop analytical thinking and problem-solving skills.

Another significant shortfall appears in Item 18, "I have control over the topic of the project" (mean = 2.08). Autonomy in selecting project topics is vital for fostering learner motivation and ownership, two factors that enhance skill acquisition through authentic, self-directed learning experiences. The lack of control implies a more teacher-directed approach, which undermines the essence of PBL as a learner-centered strategy.

Item 14, which focuses on the teacher's role in helping students identify challenging problems, also scores low (mean = 2.24), suggesting that learners may not be adequately supported in problem identification, a crucial starting point in project-based learning. This could result in poorly defined projects that lack relevance or rigor, limiting the scope for meaningful skill development.

Items such as 21 ("I learn from my mistakes during the project") and 22 ("I share ideas with my peer during the project"), each with a mean of 2.45, indicate that collaborative learning and metacognitive growth are present but not strongly emphasized. Collaboration and error-based learning are central to project-based learning and are critical for developing interpersonal skills, resilience, and a growth mindset.

Lastly, Item 23, "Presenting my project helps share what I learned," shows a slightly higher mean (2.57), suggesting that opportunities for presentation and public sharing are moderately practiced. This aspect of project-based learning helps learners refine communication skills and reinforces their understanding of the subject matter.

Hence, while project-based learning strategies are present in these institutions, their implementation lacks depth and consistency. Learners report experiencing some beneficial aspects such as reflection, presentation, and choice in demonstrating learning. However, critical components like problem identification, deep investigation, learner autonomy, and teacher facilitation appear to be inadequately applied. For project-based learning to fully support robust skill acquisition, private higher institutions in the two regions must strengthen the integration of inquiry-based, learner-driven, and collaborative practices that characterize high-quality project-based learning environments.

VERIFICATION OF HYPOTHESIS

Ho_2: There is no significant effect of project-based learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Ha_2: There is a significant effect of project-based learning strategies on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Table 7. Model Summary on Project-based Learning Strategies and the Skill Acquisition of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.259[a]	.067	.065	6.406

a. Predictors: (Constant), Project-based Learning Strategies

The Model Summary shows a correlation coefficient (R) of 0.259, indicating a positive but weak relationship between project-based learning strategies and learners' skill acquisition. The R Square value of 0.067 implies that only 6.7% of the variance in skill acquisition can be explained by project-based learning strategies. The Adjusted R Square of 0.065 confirms that this relationship remains stable when adjusted for the number of predictors. While the effect size is modest, the model still presents a predictive capacity worth considering.

Table 8. ANOVA on Project-based Learning Strategies and the Skill Acquisition of Learners

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1146.142	1	1146.142	27.931	.000[b]
	Residual	15921.602	388	41.035		
	Total	17067.744	389			

a. Dependent Variable: Skill Acquisition of Learners

b. Predictors: (Constant), Project-based Learning Strategies

Table 11 presents the Analysis of Variance (ANOVA) results. The F-statistic is 27.931 with a p-value (Sig.) = .000, which is less than the 0.05 significance level. This indicates that the regression model is statistically significant. Thus, $F(1, 388) = 27.93$, $p < .05$ indicating that the model significantly predicts learners' skill acquisition based on project-based learning strategies, providing sufficient evidence to reject the null hypothesis.

Table 9. Regression Coefficients on Project-based Learning Strategies and the Skill Acquisition of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	9.513	2.452		3.879	.000	4.691	14.334
	Project-based Learning Strategies	.529	.100	.259	5.285	.000	.332	.726

a. Dependent Variable: Skill Acquisition of Learners

From the regression coefficients table, the unstandardized coefficient (B) for project-based learning strategies is 0.529, with a standard error of 0.100. The t-value is 5.285, and the p-value is .000, which is again below the 0.05 significance level. The 95% confidence interval ranges from 0.332 to 0.726, which excludes zero, further confirming statistical significance. Project-based learning strategies significantly predicted skill acquisition, with B = 0.53, SE = 0.10, t(388) = 5.29, p < .001, 95% CI [0.33, 0.73]. The positive coefficient implies that as the use of project-based learning strategies increases, so does the learners' level of skill acquisition.

Therefore, since the p-values from both the ANOVA and coefficient analyses are less than .05, we reject the null hypothesis (Ho_2) and accept the alternative hypothesis (Ha_2). This confirms that project-based learning strategies have a statistically significant positive effect on the skill acquisition of learners in private higher institutions in the Northwest and Southwest regions of Cameroon.

Analysis of Qualitative Findings for project learning

Table 10: Effect of Project-Based Learning Strategies on Skill Acquisition

Category of Variable	Questioning Themes	Response Themes	Key Statements from Interviewees
Project-Based Learning Strategies	How do you implement project-based learning in your lessons?	Use of real-life problems, cross-disciplinary projects, and presentations.	"We have students work in teams to investigate real community issues like waste management or entrepreneurship." (R6)
	How do students respond to project-based learning activities?	Positive emotional response, sense of ownership, but unequal effort distribution	"Some take full charge while others ride along. Monitoring and

		among group members.	grading become tricky." (R10)
	What are the perceived outcomes of these strategies on learners' skill development?	Improvement in research, problem-solving, and communication skills, though time-intensive.	"I see better application of theory in practical contexts, but it requires a lot of coordination." (R2)

The interview findings in Table 22 offer a comprehensive understanding of the effect of project-based learning (PBL) strategies on learners' skill acquisition. While the quantitative results showed a weak but statistically significant correlation between PBL strategies and skill acquisition ($R = .259$, $R^2 = .067$, $p < .05$), the qualitative data from lecturers reveal both the pedagogical strengths and implementation complexities of this instructional method. These insights provide a valuable interpretive lens through which to understand why PBL may have a smaller effect size in the statistical analysis, despite its recognized potential in educational theory.

Lecturers reported implementing PBL by engaging students with real-life problems, encouraging cross-disciplinary thinking, and requiring public presentations of their findings. As R6 stated, "We have students work in teams to investigate real community issues like waste management or entrepreneurship." This illustrates the authenticity of learning experiences embedded in PBL, aligning with experiential learning theories which posit that students learn more deeply when they apply knowledge to meaningful, contextually relevant situations. Such practices not only support knowledge retention but also foster critical 21st-century skills, including collaboration, creativity, and civic responsibility.

The response themes also reflect that students tend to react positively to PBL experiences, expressing emotional engagement and a stronger sense of ownership over their learning. However, challenges with group dynamics and unequal participation emerged as recurrent issues. R10 observed, "Some take full charge while others ride along. Monitoring and grading becomes tricky." This highlights a common dilemma in PBL, ensuring equitable contribution among group members. While team-based tasks foster collaboration, they can inadvertently allow passive participation from some students if not carefully monitored. These imbalances not only affect group cohesion but may also limit the skill acquisition of less active participants, which could partly explain the relatively modest effect size noted in the regression analysis.

Furthermore, lecturers perceived that PBL positively influenced learners' research abilities, problem-solving capacity, and communication skills. R2 noted, "I see better application of theory in practical contexts, but it requires a lot of coordination." This statement underscores the practical value of PBL in bridging theoretical knowledge and real-world application, an essential goal of competency-based education. However, it also points to a significant limitation: the intensive coordination, time commitment, and planning that effective PBL demands from both instructors and learners. In resource-constrained environments or institutions with large class sizes and rigid timetables, these logistical demands can severely restrict the scalability and consistency of PBL implementation.

Critically, the qualitative data reveal a disparity between the educational potential of PBL and its practical execution. While the pedagogical rationale for PBL is sound and its benefits are recognized, structural and organizational challenges, such as time constraints, uneven group work, and difficulties in assessment, undermine its effectiveness. These limitations likely contribute to the lower R^2 value (0.067) observed in the quantitative analysis, indicating that while PBL does positively influence skill acquisition, other variables or instructional strategies may exert a more substantial impact under current conditions.

Therefore, the interview findings suggest that project-based learning holds strong potential for enhancing learners' applied skills, particularly in research and communication. However, the success of PBL hinges on effective planning, fair group dynamics, and adequate institutional support. To harness the full value of PBL, universities must invest in teacher training, develop clear assessment frameworks, and create enabling environments that facilitate collaborative, student-centered learning. Without such support, the transformative potential of PBL may remain underutilized, thus explaining its weaker statistical association with skill acquisition in the study.

DISCUSSION OF RESULTS

Differentiated Learning Strategies and Skill Acquisition

The finding that differentiated learning strategies have a moderate and statistically significant impact on learners' skill acquisition ($R = .374$, $R^2 = .140$) in private higher institutions in the Northwest and Southwest regions of Cameroon, underscores a meaningful pedagogical development in contemporary education, particularly in private higher institutions in Cameroon. This relationship suggests that when instruction is adapted to students' diverse abilities, interests, and learning preferences, it positively influences the development of both cognitive and practical skills. Recent frameworks, such as those proposed by Smale-Jacobse et al. (2019), reaffirm the relevance of differentiating instruction through content, process, and product to meet learners' varying needs. In this study, lecturers reported tailoring these elements based on students' readiness levels, leading to higher engagement, increased participation, and enhanced confidence, particularly among struggling students.This is in agreement with the work of Kanyugi et al (2024) which reveal that learners subjected to differentiated instruction had a better performance compared to those expose to conventional teaching methods. This supports findings by Joseph et al. (2020), who demonstrated that differentiated instruction reduces achievement gaps and enhances inclusivity by aligning pedagogy with learners' cognitive profiles and social contexts.

However, implementing differentiated instruction poses significant challenges. Interviewees highlighted the time-intensive nature of planning individualized lessons and the added difficulty of managing differentiation in large, under-resourced classrooms. These concerns echo the work of Altintas and Özdemir (2021), who point out that without institutional support and manageable workloads, teachers often find it difficult to sustain effective differentiation practices. Additionally, lack of professional development emerged as a recurrent barrier, consistent with findings by Tay et al. (2022), who argue that many educators lack formal training in differentiated strategies, leading to superficial application or outright resistance. In the resource-constrained environments of the Northwest and Southwest regions of Cameroon, these obstacles are particularly acute. The findings suggest that while differentiated learning holds great promise, its success is strongly dependent on systemic reforms, such as smaller class sizes, targeted teacher training, and administrative support for flexible pedagogy

Project-Based Learning Strategies and Skill Acquisition

The statistically significant but weak correlation between project-based learning (PBL) and skill acquisition ($R = .259$, $R^2 = .067$) indicates that while PBL has potential benefits in private higher institutions in the Northwest and Southwest regions of Cameroon, its impact on student skill development is modest and context-dependent. This finding suggests that although students engaged in PBL may acquire relevant competencies, such as problem-solving, collaboration, and communication, these outcomes are not consistently realized across different institutional settings. Lecturers in the study reported integrating interdisciplinary and real-world projects, a practice that aligns with the study by Kokotsaki, Menzies, and Wiggins (2016), who emphasize that well-designed PBL fosters deep learning through authentic engagement. Students' self-reported improvements in research and communication align with this view, especially in settings where projects were aligned with course objectives and adequately supported by instructors.

However, the weak effect size observed in the study also underscores the practical limitations of PBL when not optimally implemented. Several lecturers noted that group dynamics posed significant challenges, such as unequal workload distribution and varying levels of participation, which undermined the intended collaborative benefits of PBL. These concerns are echoed by Holm and Bao (2021), who argue that PBL can fail to meet learning objectives if learners are not adequately prepared or monitored throughout the project phases. Additionally, limited instructional time and rigid curriculum structures in many Cameroonian higher institutions constrain the scope and depth of projects that can be implemented. Inadequate infrastructure and limited access to digital tools further reduce the effectiveness of PBL, particularly in contexts where technological integration is essential for research and presentation. Thus, while PBL has potential to foster higher-order thinking and practical skills, these benefits are often diluted in the absence of enabling conditions.

Conclusion

This study set out to examine the effect of advanced learning strategies on the skill acquisition of learners in private higher institutions across the Northwest and Southwest regions of Cameroon. In response to mounting concerns about graduate employability and the relevance of higher education outcomes in today's knowledge economy, the study focused on how modern pedagogical approaches, specifically differentiated learning, project-based learning, self-directed learning, and collaborative learning, contribute to the development of essential academic and professional skills. Guided by constructivist learning theories and a mixed-methods research design, the study combined quantitative and qualitative data to generate a holistic understanding of instructional effectiveness in the context of Cameroonian private tertiary education.

The findings from the first objective revealed that differentiated learning strategies had a moderate and statistically significant effect on learners' skill acquisition. This confirms that when instruction is tailored to meet students' varying abilities, interests, and readiness levels, it fosters improved cognitive engagement and the development of relevant competencies. Lecturers who applied content, process, and product differentiation noted enhanced student participation, confidence, and practical application of knowledge. However, challenges such as time constraints, large class sizes, and lack of professional training were found to hinder the full realization of differentiation's benefits.

With respect to the second objective, project-based learning (PBL) demonstrated a weak but statistically significant impact on skill acquisition. Students engaged in real-world, interdisciplinary projects exhibited growth in research, communication, and critical thinking skills. Nevertheless, inconsistencies in implementation, ranging from unequal workload distribution to inadequate scaffolding, limited the overall impact of PBL. These results suggest that while PBL holds potentials for transformative learning, its success depends heavily on structured guidance, teacher expertise, and adequate time allocation

Recommendations of the Study

In light of the findings of this study, several recommendations are proposed to stakeholders in the higher education sector. Firstly, lecturers should be encouraged to integrate self-directed learning strategies more systematically into their instructional practice. This can be achieved through the use of flipped classrooms, reflective journals, learning portfolios, and independent research projects that empower students to take ownership of their learning journey. At the same time, differentiated instruction should be employed by assessing learners' prior knowledge and preferences, and then adapting teaching methods, materials, and assessments to better meet their individual needs.

Secondly, institutional administrators should prioritize capacity building for lecturers through ongoing professional development programmes that focus on instructional design, learner-

centered pedagogies, and classroom facilitation. To support the effective implementation of project-based and collaborative learning, administrators should provide guidelines, monitoring frameworks, and practical training on how to design and assess group activities that promote equitable participation and skill development.

REFERENCES

1. Agborbechem. P. T (2016) curriculum structure and the Cameroon labour and industrial market. International journal of English language teaching. vol. 4, no.3, pp.23-33
2. Altıntaş, E., & Özdemir, A. S. (2021). Teachers' challenges and adaptation strategies in differentiated instruction. *International Journal of Educational Research Open, 2*(1), 10–32.
3. Blumenfeld, P. C., et al. (1991). Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning. Educational Psychologist, 26(3-4), 369-398
4. Fombe, C., & Fon, D. (2020). Technological Infrastructure in Higher Education: A Comparative Analysis of Public and Private Institutions in Cameroon. Journal of Education Technology, 8(1), 98-115.
5. Grant, M. M. (2002). Getting a Grip on Project-Based Learning: Theory, Cases and Recommendations. Meridian: A Middle School Computer Technologies Journal, 5(1), 83-95.
6. Heacox, G. (2012). Making differentiation a habit: How to ensure success in academically diverse classrooms. Free Spirit Publishing.
7. Holm, M., & Bao, X. (2021). Challenges and strategies in project-based learning: A teacher perspective. *Education Sciences, 11*(1), 34-59.
8. Isaacs, S. (2007). ICT in Education in Africa: Statistical and Institutional Context. UNESCO Institute for Statistics
9. Kanyugi, D., Obote, D., Munanu, S., & Iguna, M. (2024). Effect of Differentiated Instructional Approach on Learners' Participation and Academic Achievement in Biology in Public Secondary Schools in Mbeere North Sub-County, Kenya. *East African Journal of Education Studies, 7*(3), 1-12. https://doi.org/10.37284/eajes.7.3.2012
10. Kibett, J. K., & Kathuri, N. (2005). Effects of project-based learning on student performance of higher cognitive skills in secondary school agriculture.
11. Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving Schools, 19*(3), 267–277.
12. Larmer, J., & Mergendoller, J. R. (2015). Gold Standard PBL: Essential Project Design Elements. Buck Institute for Education.
13. Markham, T. (2011). Project based learning a bridge just far enough. *Teacher librarian, 39*(2), 38.
14. Markham, T., Larmer, J., & Ravitz, J. (2003). Project-Based Learning Handbook: A Guide to Standards-Focused Project-Based Learning for Middle and High School Teachers. Novato, CA: Buck Institute for Education.
15. Mbanya, J. (2019). Bridging the Gap Between Education and Employability in Cameroon: Insights from the Technology Sector. Journal of African Innovation, 6(4), 271-286.
16. MIGIRO, W. L. (2022). The effect of selected teaching methods on acquisition of technical skills by mechanical engineering technician trainees: A case of national polytechnics in the western region of Kenya (Doctoral dissertation, University of Eldoret).

17. Okuda, M. (2015). Collaborative Project-Based Learning in Japan: The Role of Cross-Disciplinary Projects. Educational Review, 22(1), 45-57.

18. Smale-Jacobse, A. E., Meijer, P. C., Helms-Lorenz, M., & Maulana, R. (2019).Differentiated instruction in secondary education: A systematic review of research evidence. *Educational Research Review, 27*, 100–117. https://doi.org/10.1016/j.edurev.2019.02.001

19. Tay, H. L., Lim, C. P., & Khoo, E. M. (2022). Professional learning and challenges of differentiated instruction in tertiary education. *Education and Information Technologies*, *27*, 10525–10544. https://doi.org/10.1007/s10639-022-11114-1

20. Tomlinson, C. A. (2001). How to Differentiate Instruction in Mixed-Ability Classrooms. Association for Supervision and Curriculum Development (ASCD).

21. Wakhungu, N. H., & Njoroge, M. M. (2023). Differentiating Content as a Way of Enhancing Students' Self-Efficacy: A Study of Private Schools in Ruiru Sub-county. *European Journal of Education and Pedagogy*, *4*(5), 15-20.

22. Wurdinger, Scott & Haar, Jean & Hugg, Robert & Bezon, Jennifer. (2007). A qualitative study using project-based learning in a mainstream middle school. Improving Schools. 10. 150-161. 10.1177/1365480207078048.

23. Zhang, L., & Ma, Y. (2023). A study of the impact of project-based learning on student learning effects: A meta-analysis study. *Frontiers in psychology*, *14*, 1202728.