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# The Integrated Project-Based Approach to Learning (IPBAL) and the Acquisition of Lifelong Learning Skills in Pupils of Government Bilingual Primary Schools in Mbouda Sub-Division

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**Abstract**

This study was designed to investigate the relationship between the integrated project-based approach to learning and the acquisition of lifelong learning skills in pupils of Government bilingual nursery and primary schools in the Mbouda sub-division. The study was guided by the cognitive development theory of Jean Piaget and the experiential theory of John Dewey. The study adopted a cross-sectional survey design. The sample population for the study was made up of respondents that were Headteachers, and teachers. The population and sample were selected using the purposive sampling technique. The instruments used were closed-ended questionnaires. Data was collected from a sample of 14 head teachers and 80 teachers. Data were analyzed using descriptive and inferential statistics. The hypotheses of the study were tested using a non-parametric Spearman's rho test. Findings showed that there was a significant, positive, and relatively strong relationship between the identification of problems and learners' acquisition of lifelong skills (R-value $0.504^{**}$). Similarly, findings revealed that there was a significant, positive, and strong relationship between the use of appropriate instructional methodologies and learners' acquisition of lifelong skills (R-value $0.630^{**}$). Furthermore, findings showed that there was a significant, positive, and relatively strong relationship between collaboration learning and learners' acquisition of lifelong skills

(R-value 0.515**). Findings equally revealed that there is a significant, positive, and strong relationship between the integration of ICT in the teaching-learning process and learners' acquisition of lifelong skills (R-value 0.556**). It was concluded that an integrated project-based approach to learning influences the lifelong learning skills in some government bilingual primary schools in Mbouda Sub Division. Based on the findings: it was recommended that teachers should be given the impunities and facilities that can help them identify pupils' problems and provide possible solutions. Teachers and the community should work together on appropriate instructional methodologies, integrating ICT into the teaching-learning process so that pupils can acquire lifelong learning skills.

**Keywords:** project-based learning, lifelong learning, lifelong learning skills

## 1. Introduction

Education is a basic human right and the foundation on which any society builds peace and drives sustainable development. Education for sustainable development has become the core of curriculum development in Cameroons' Nursery and primary schools. Nursery and Primary Education stand as the foundation of sustainable learning. It is on this basis that Cameroon has ratified several conventions related to compulsory basic education. These conventions range from the Jomtien Education Framework of 1990, the Salamanca Statement of 1994, and the Dakar Framework of 2000 to the Incheon Declarations of 2015 precisely on quality education. Besides these international conventions, the Constitution of the Republic of Cameroon guarantees the right of the child to education and further highlights it in the 1998 Law which laid down Guidelines for Education. To this effect, the curriculum has been modified to attain these education milestones. With emphasis on: -relevant content, learning objectives, appropriate instructional methodologies, and learning practices. Primary Education should not only offer individual subjects but should ensure that all learners can develop the knowledge, values, competencies, lifelong skills, and attitudes needed to respond to sustainability challenges throughout their professional and personal lives (UNESCO, 2014a). Interestingly, teaching methods are special procedures through which educational goals are attained. The Cameroon education system has experienced pedagogic evolutions from the Objective-based Approach (OBA) through the Inferential Thinking Approach which was referred to as the "New Pedagogic Approach" to the Competence-based Approach (CBA) or the Behavioural Objective-based Approach which is in use today. Grant et al. (1979) define competency-based education as a form of education that derives the curriculum from an analysis of a prospective or actual role in contemporary society and that attempts to certify learners' progress based on demonstrated performance in some or all aspects of their lives. CBA requires that learning should be based on the potential of the learner, the learner should be responsible for his/her learning, and the focus should be on learning and not on teaching.

Concurrently, PBA is seen as one of the pedagogic practices that make learners more responsible for their learning and has the potential to help learners develop lifelong abilities. PBL is a pragmatic approach to learning in which learners create their knowledge through learning activities built around intellectual inquiry and a high degree of engagement with meaningful tasks. It is equally a dynamic approach to education that allows learners to

discover content, identify problems, engage in higher-level thinking, make personal connections, integrate ICT, reflect on what they have learned, and use appropriate methods in problem-solving. Projects are designed to allow learners with a variety of learning styles to demonstrate their acquired knowledge, skills, and attitudes. Therefore, a well-designed Project-Based Learning activity addresses different learning styles and does not assume that all learners can demonstrate their knowledge, skills, and attitudes in a single or standard way. It is an effective way of connecting classroom activities to the real world through a process of integrating the four broad-based competencies in the learner's life. PBL is an "investigative" or "discovery" type of learning. It is a research-based method of learning, wherein, together with the learners, questions are asked, investigated, and solutions proposed and presented. PBL emphasizes the absolute need for teachers to stimulate all the elements of learners' development, especially lifelong learning skills. This implies that the learner will demonstrate the desire and the will to undertake and continue education and organize self, especially through efficient time and information management, individually or in groups.

Curriculum change is a requisite for the sake of meeting standards and attainment of educational goals for a sustainable country according to the UN 2030 agenda (UNESCO, 2000). Since teaching methods are special procedures through which educational goals are attained, the Cameroon education system has experienced pedagogic evolutions from the Objective-based Approach (OBA) through the Inferential Thinking Approach that was referred to as the "New Pedagogic Approach" to the Competence-based Approach (CBA) or the Behavioural Objective-based Approach which is in use today. The CBA facilitates the development of skills through the practice of PBL that make the learners more responsible for their learning while promoting lifelong learning opportunities. For effective integration of PBL as a pedagogic practice in schools, the Ministry of Basic Education 2018, introduced a new pedagogic tool or document otherwise known as the curriculum. The activities designed or developed per subject; are aimed at enabling the nursery and primary school learners to acquire competencies for problem identification, communication, dynamic use of strategies, techniques, and methods in problem-solving, flexibility, critical thinking, creativity, collaborative abilities, and ICT proficiencies upon graduation. Mbouda is one of the many sub-divisional inspectorates in Bamboutos having about 14 English nursery and primary schools. Mbouda equally happens to be one of the subdivisions in Bamboutos where the vision of promoting the implementation of integrated project-based learning in education is welcomed. A couple of English schools are ongoing in the pursuit of promoting bilingualism via bilingual education in Cameroon. Implementation of the curriculum using the integrated project-based approach to learning stands as a mountain to all curriculum workers. The importance of transmitting the content has made it a call for concern to all in terms of skill acquisition and development which will help learners in their lifetime. From my observation, pupils from a purely francophone background and culture who barely understand their mother tongue and French language are been enrolled in English nursery and primary schools to be taught, nurtured, and trained in the English language. Challenging to my experience in the field is the language of instruction through which the integrated project-based approach to learning is been communicated to learners. A language strange to their hearing yet, targeting effective transfer of knowledge, skills, values, competencies, and attitudes envisaging the

acquisition of lifelong learning skills as a possible outcome draws the attention of the researcher.

This is where the problem lies; this researcher was interested to know whether the PBAL being used to implement the curriculum is in pursuit of the intended goals of the curriculum whose possible outcome is the acquisition of lifelong learning skills in learners. Based on the above, this study seeks to investigate the link between the IPBAL and the acquisition of lifelong learning skills in government bilingual primary schools in the Mbouda sub-division of Cameroon.

### *1.1 importance of the study*

Vision 2035 of an Emergence Cameroon envisaged sustainable Cameroonian. However, looking at the increasing rate of unemployment due to high rates of unqualified labor in Cameroon upon completion of Nursery and primary school holders of certificates poses a challenge. This issue of pupils not being competent to identify common issues in their lives/surroundings devise appropriate strategies/methods and solve their problems independently after two years of nursery education and six years of primary education becomes a call for concern to the educational family. Tracing its roots from the perspective of learning approaches, the IPBAL has to be tested and proven that it will inculcate in the learners the expected skills or competencies that stand as a prerequisite to lifelong learning skills. Contemporary studies on learning approaches in primary school with theories, clearly associate learning approaches as a problem to the acquisition of lifelong learning skills. Thus, it is necessary to research the association between IPBAL and the acquisition of lifelong learning skills.

### *1.2* ***Literature Review***

PBL is rooted in the progressive education movement, which advocated for more learner-centered and experiential approaches to education that support “deeper learning” through active exploration of real-world problems and challenges. Inspired by the philosophies of John Dewey, William Heard Kilpatrick developed the “project method,” which is cited as the first formalization of a PBL model (Peterson, 2012). Recent shifts in the education reform movement may also be contributing to the popularity of PBL. Education reformers and policymakers increasingly support a more expansive and holistic vision for public education that aligns with the deeper learning goals of PBL. PBL is theorized to be an approach that could address problems or challenges of the real world thus, enhancing learners’ motivation, conceptual knowledge, problem-solving skills, and lifelong learning skills (Thomas, 2000). To corroborate, the effectiveness of innovations in curriculum and instruction like PBL often hinges on the depth and quality of implementation, which can vary significantly within and across schools (Coburn, 2003). For this reason, the challenges associated with PBL implementation must be addressed if efforts to scale up PBL are to promote positive learner outcomes and lifelong learning skills.

Buttressing Project-Based Learning (PBL), Wurdinger, et al. (2007: 151) is a learner-centered approach that engages learners in a constructive investigation through projects that

necessitate critical thinking, creativity, and collaboration. It is a way of 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. As it is a student-driven and teacher-facilitated approach based on inquiry, collaboration, and communication, PBL can be expected to contribute to developing the skills required in today's world (Bell, 2010: 39). This learning approach encourages both independent exploration and collaborative teamwork to create projects designed to link what is learned in the classroom to real-life situations outside of school, therefore it is used to guide students to gain 21st-century skills (Du Toit et al., 2016; Giri, 2016; Moylan, 2008; Rabacal et al., 2018; Silva, 2009; Rotterham & Willingham, 2009). Project-based learning involves concepts such as Problem identification, Problem definition, Plan development, and Plan implementation and integration of ICT in the teaching-learning process.

In like manner, Mawas & Muntean (2018), The United Nations Educational, Scientific and Cultural Organization (UNESCO) proposed a competence approach based on four pillars of learning that support the development of 21st-century skills: learning to know, learning to do, learning to be, and learning to live together. "Learning to know" includes developing the faculties of memory, reasoning, and problem-solving; it pre-supposes learning to learn and could usefully be extended to the concept of knowledge building. "Learning to do" implies the acquisition of complex skills, but also refers to developing an aptitude for teamwork and initiative, and a readiness to take risks. "Learning to be" is founded on the fundamental principle that education needs to contribute to the all-round development of each individual. This pillar deals with what it is to be human, comprehended by intellectual, moral, cultural, and physical dimensions. "Learning to live" together refers to developing an understanding of others as well as highlighting the reality that if we are to understand others, we must first know ourselves (UNESCO, 2000).

According to Blumenfeld, et al.(1991), Project-Based Learning is a comprehensive approach based on learners' engagement in an investigation, in which learners seek solutions to problems by asking questions, making plans, collecting and analyzing data, discussing their findings and ideas with others, and drawing conclusions. In this study, it is seen as a learning approach that advocates for problem identification, use of appropriate instructional methodology to solve the identified learner's, classroom or school problem, teachers exploiting curriculum content in collaboration with colleagues, and learners not leaving out the integration of ICT into the teaching-learning process.

Maija-Aksela & Houti-haatainen (2006, 2014) examined the issues review of project-based learning and found that project-based learning should be viewed as an innovative instructional method. It can be introduced into the classrooms in several ways: Teachers and schools can make use of externally developed PBL curricula, they can develop their own PBL approaches, or PBL can be part of a whole-school reform effort. Implementing PBL is often challenging. It requires that teachers modify their roles (from directors to facilitators of learning) and that they tolerate not only ambiguity but also more noise and movement in the classroom. Teachers must adopt new classroom management skills and learn how best to support their

students in learning, using technology when appropriate. And they must believe that their students are fully capable of learning through this approach (Quint, 2017).

Asst. Prof. Dr. Z. Zuhal Güven (2019) investigated how project-based learning could help university students acquire lifelong learning skills. The results of the analyses showed that the participants found it engaging to develop a project about a social problem, and adopted a positive attitude towards project-based learning. The outcomes suggested that project-based learning might help students gain competencies to cope with real-life problems, and it was concluded that comprehensive studies were needed to explore the effect of project-based learning on fostering lifelong learning skills.

Han, Yalvac, Capraro & Capraro (2015); and Kokotsaki, Menzies & Wiggins (2016) carried out to examine Teachers' ability to execute project-based learning (PBL) in practice and the effectiveness of such learning. They found PBL very useful to use in their instruction. Findings reveal that it promotes (i) students' or teachers' learning and motivation, (ii) collaboration and a sense of community at the school level, (iii) student-centered learning, and (iv) versatility in their instruction.

Hands-on activities in the instructional process develop skills in learners that last for a lifetime. Lifelong learning skill is regarded as a crucial necessity to build the future of societies with a mindset that strives for essential learning dimensions such as self-directed learning, collaborative learning, learning on-demand, and organizational learning (Fischer, 2000). Self-directed learning could be considered a core dimension of lifelong learning because it is defined as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Kohles:18).

Also, CSEP (2011) defines it as the continuous development of skills and knowledge to enhance the quality of life and employment prospects. Relating to this work, lifelong skills are defined as a group of psychosocial competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, understand others, and cope with and manage their lives healthily and productively. They are also seen as how learners master academic content by translating knowledge into action.

Entertaining the opinion of Collins (2009); McGarrah (2014); McGarrah, (2015); Silva (2009); Soland, Hamilton & Stecher (2013), lifelong learning and 21$^{st}$-century skills are interconnected concepts as they are discussed in the context of the changing demands in the 21st century. As the 21st century requires people to gain some specific skills to cope with the difficulties they may face at the societal and personal levels, learners should learn to construct, create, and communicate the knowledge collaboratively to meet the demands in the rapidly changing paradigms in the business world (Bialik & Fadel, 2015). Additionally, the globalizing world demands citizens equipped with new learning styles like fluency in multiple media, ICT literacy, and active learning based on collectively constructed experiences (Dede, 2010: 60).

Studies have shown that employers require prospective employees to have such traits as good communication skills, problem-solving skills, decision-making ability, team-working efficiency, adaptability, and management competence, along with technical competencies necessary for a specific job (De Fruyt et al., 2015: 278; Şahin & Tepençelik, 2015: 52). Primary school programs must be redesigned to empower pupils with generic skills such as communicating, collaborating, problem-solving, computer literacy, and language efficiency (YÖK, 2007: 185-190). Given the fact that Basic education is the foundational stage of formal learning for many people before they face real-world demands, it could be argued that educational approaches that will enable pupils to gain these skills should be investigated. In this regard, Bell (2010); Giri (2016), and Rabacal et al., 2018) ascertained that project-based learning could be promoted as it offers an opportunity to foster various skills to cope with real-life problems in today's world

Lifelong Learning is the continuous building of skills and knowledge during one's life that occurs through experiences faced in his lifetime. Te-Achnology (2010) is of the Idea that learning can and does occur beyond the formal structure of an educational institution and occurs throughout one's lifetime. LLL is about acquiring skills that enable us to survive (continue to live or exist). This may sound a bit dramatic, but it is about learning to help us through our daily lives (Lewis-Fitzgerald, 2005).

Field (2001); and Aspin & Chapman (2000) define the lifelong learning concept as activities people perform throughout their life to improve their knowledge, skills, and competence in a particular field, given some personal, societal, or employment-related motives. Relating to this study it is the continuous development of knowledge and skills that people experience after formal education and throughout their lives. Lifelong learning builds on prior learning as it expands knowledge and skills in depth and breadth.

Lifelong Learning involves mastering and updating basic skills and also offering learning opportunities at more advanced levels. In a constantly changing environment, having life skills is an essential part of being able to meet the challenges of everyday life. The term '*life skills'* refers to the skills you need to make the most out of life. Any skill that is useful in your life can be considered a life skill. Lifelong learning skills (LLS from now on) lay the foundation for learning and working as they foster various skills necessary in the changing world. Though the origin of lifelong learning as a concept dates back centuries, it has been emphasized as a demand of modern society in the last forty decades (Collins, 2009; Knowles, 1975; Duyff, 1999; Fischer, 2000; Titmus, 1999). One of the latest reports released by UNESCO (2020: p. 10) argues that lifelong learning is key for the future as it equips people with some capabilities to cope with change and construct an ideal future.

Nevertheless, the philosophy underlying the definition of lifelong learning was summarized by Duyff (1999: 538) under eight headings as follows: (1) Continuous- lifelong learning never stops, (2) Supportive - We don't do it alone, (3 ) Stimulating and empowering - It's self-directed and active-not passive, (4 ) Knowledge, values, skills, and understanding - It's more than what we know, (5 ) Lifetime - It's from our first breath to our last, (6 ) Applied – Lifelong learning is not just for knowledge's sake, (7 ) Confidence-creativity, and enjoyment

- It's a positive, fulfilling experience, (8) All roles, circumstances, and environment – It applies not only to our chosen profession but to our entire life.

*1.3 Research Questions*

The main research question of this study remains: "What link exists between the IPBAL and the acquisition of lifelong learning skills?"

The sub-research questions are the following four:

a. What link exists between the identification of problems and the acquisition of lifelong learning skills?

b. What is the relationship between the use of appropriate instructional methodologies and the acquisition of lifelong learning skills?

c. To what extent does collaborative learning relate to the acquisition of lifelong learning skills?

d. How does the integration of ICT in the learning-teaching process link to the acquisition of lifelong learning skills?

## 2. Method

This section focuses on the procedures employed in the investigation. Specifically, the focus will be on the research design, population of the study, sample of the study, sampling technique, instruments used to collect data, and ethical considerations. To begin, the researcher will be addressing the design used in this study in the next subsection.

*2.1 Study Design*

The study adopted a cross-sectional survey design in a quantitative method. The quantitative approach was used in seeking answers to the four research questions. Quantitatively, the researcher employed a close-ended (structured) questionnaire to get respondents' objective views on how they acquire lifelong learning skills with the implementation of PBAL in government primary schools in the Mbouda Sub-Division. Mbouda is one of the many sub-divisional inspectorates in Bamboutos having about 15 English primary schools and happens to be one of the subdivisions in Bamboutos where the vision of promoting the implementation of the integrated project-based approach to learning in education is warmly received and is practiced. Data was collected within May 2022.

*2.2 Sampling Procedures*

The purposive sampling technique was used to get the target population and population sample. It is equally known as a non-probability sampling technique. The researcher deliberately chose to work with a particular category of schools in the Mbouda Sub-Division of Cameroon based on the objectives of the research.

2.2.1 Study Population

The sample population was selected conveniently since all schools used the integrated

project-based approach to learning to implement the 2018 curriculum of the nursery and primary school. The population of this study was 125 participants. It consisted of all the Headteachers and teachers of the 15 government bilingual nursery and primary schools in Mbouda sub-divisional inspectorate (IAEB, 2022). The population of the study was obtained from the head teachers of the respective schools through a survey tour that was made by the researcher in the various schools before printing out the research instruments. The number of participants varies from school to school based on their learners' population. The statistics gathered by the researcher measured an estimated population of 125. The accessible population consisted of all inspectorate workers, Headteachers, and teachers of the three levels in each primary school who were available and willing to cooperate with the researcher on the day of data collection.

2.2.2 Sample Size (Participants)

The participants for the study were made up of respondents that were Headteachers, and teachers. Headteachers were 14 and teachers were 80 respectively. This summed up to 94 participants from Mbouda Sub-Division. Based on the population of the study, this sample size aligns with the range given by the computed values of the Krejcie & Morgans Table 1970. This constituted the actual participants in the study. These categories of people chosen are those directly involved in the implementation phase of the curriculum development process. These levels were chosen because they form the complete cycle of the primary school. Secondly, they are exposed directly to all learning/teaching experiences, content, learning materials, and diverse learning methods. At these levels, entry behavior and outcomes are measured. However, all the target population in this area was accessible. Thus, the researcher worked with the above sample population given the time and resources available.

*2.3 Research Instruments*

The instruments used were questionnaires. A self-designed questionnaire and an interview guide served for this study. The questionnaire was used because the population is literate and large and the time for collecting data may be limited. Closed-ended questions were developed because they are easy to fill, save time, and keep the respondents focused on the subject. The questionnaire guide was constructed with items coined from ideas gotten while exploring literature relevant to the respondents about the research topic and its importance for their studies.

In the closed-ended propositions/statements, the subjects of the research are asked to indicate the degree of agreement or disagreement for a set of opinions, perceptions, etc. (Argyropoulou, 2018). In this context, the four-point Likert-type scale (from 1 to 4) was chosen as one of the most prevalent in the social sciences (Argyropoulou, 2018; Robson & McCartan, 2015). Based on this scale, depending on the content of the proposition/statement, the following four judgments/responses are included in the graded responses: 1)"SA for strongly agree" which is equivalent to the code/number (4). 2) "A for agree" which is equivalent to code/number (3). 3) "D for disagree" which is equivalent to code/number (2). 4) "SD for strongly disagree" which is equivalent to code/number (1)

2.3.1 Administration of Instruments

With a research permit obtained from the school, the researcher had access to administer her questionnaires in the various schools. Upon arrival in each of the schools, the student researcher presented the permit to the authorities to get the authorization to administer questionnaires to the teachers. After introducing herself to the teachers, the student researcher explained the objectives and purpose of the study. The respondents filed the questionnaires while the student researcher conducted observation.

2.3.2 Ethical Considerations

Before the questionnaires were administered, the researcher had authorization from the University of Bamenda, the Faculty of Education, and the Department of Curriculum and Pedagogic signed by the department authorities. Details on the authorization are found in the appendix J. I then moved to the various schools in the Mbouda subdivision. In each school, l introduced myself to the Headteacher and the purpose of my visit. With their permission, l briefed the teachers and assured them that their responses would be treated as confidential issues.

## 3. Results Of Psychometric Properties Test

### *3.1 Instrument Validity*

Validity was to ensure that the instruments measure what it is supposed to measure.

To Lacity and Jansen, (1994). It makes common sense and has a persuasive and seeming right to the reader. The instrument validation was in three phases namely: - face validity, content validity, and construct validity. In this study, a pilot study was done to approve content and construct validity and likewise face validity.

### *3.2 Reliability*

To approve the reliability of the instruments, a test-retest method was used. A pilot study was carried out and after one week, the same questionnaire was administered to the same group of respondents. Since, IPBAL was the independent variable it was further operationalized as constituting the identification of a problem, use of appropriate instructional methodologies, collaboration, and integration of ICT. The responses registered on the first occasion and those after a week were calculated as shown below.

Table 1. Reliability Analysis Report for Teachers

| Variables | Cronbach Alpha Coefficients | Variance | No of items |
|---|---|---|---|
| Identification of learners' problems | 0.795 | 0.019 | 5 |
| Use of appropriate instructional methodologies | 0.713 | 0.023 | 5 |

| | | | |
|---|---|---|---|
| Collaborative learning | 0.720 | 0.009 | 5 |
| Integration of ICT in the teaching-learning process | 0.750 | 0.021 | 5 |
| Acquisition of lifelong learning skills | 0.805 | 0.027 | 10 |
| **Overall reliability analysis value** | **0.757** | **0.019** | **30** |

The reliability statistics for teachers show that they are consistent in their responses with coefficient values ranging from 0.713 to 0.805. The overall coefficient value of the teachers' questionnaire is 0.757 above the recommended threshold of 0.7. Based on this, it was concluded that the respondents are consistent in their responses which makes the questionnaire reliable for the study.

Table 2. Reliability Analysis Report for Head Teachers

| **Variables** | **Cronbach Alpha Coefficients** | **Variance** | **No of items** |
|---|---|---|---|
| Identification of learners' problems | 0.794 | 0.011 | 5 |
| Use of appropriate instructional methodologies | 0.831 | 0.009 | 5 |
| Collaborative learning | 0.765 | 0.043 | 5 |
| Integration of ICT in the teaching-learning process | 0.705 | 0.054 | 5 |
| Acquisition of lifelong skills | 0.817 | 0.153 | 10 |
| **Overall reliability analysis value** | **0.782** | **0.054** | **30** |

*Source: (Researcher May 2022)*

The reliability statistics for head teachers also show that they are consistent in their responses with coefficient values ranging from 0.705 to 0.831. The overall coefficient value of the head teachers' questionnaire is 0.782 above the recommended threshold of 0.7. Based on this, it was concluded that the respondents are consistent in their responses which makes the questionnaire reliable for the study.

Table 3. Test of Normality

| Variables | Kolmogorov-Smirnov test | | | | |
|---|---|---|---|---|---|
| | Statistic | Skewness | Kurtosis | df | P-value |
| Identification of learners' problems | .114 | -.216 | -.378 | 80 | .011 |
| Use of appropriate instructional methodologies | .118 | -.578 | .122 | 80 | .007 |
| Collaboration among teachers | .121 | -.750 | .518 | 80 | .006 |
| Integration of ICT in the teaching-learning process | .104 | -.283 | .643 | 80 | .032 |
| Acquisition of lifelong learning skills | .129 | -.026 | -.273 | 80 | .002 |

a. Lilliefors Significance Correction

As earlier mentioned, statistics from the test of normality show the data for sub-variables significantly deviate from the normal distribution pattern (p-value < 0.05). The negative skewness far away from zero for all sub-variables indicates the data are more skewed to the left resulting in an abnormal distribution pattern of the data. It should be noted that for data to be approximately normally distributed, the skewness value will be closer to zero indicating that the data is not significantly skewed either to the left or right but, has an approximately equal number of persons above and below the mean. The negative kurtosis value for the identification of problems and acquisition of lifelong skills implies that the normality trend of the data is relatively flat while that for others is not relatively peak given that the kurtosis values do not have a higher positive value. Therefore, with the above statistics, using Spearman's rho test in testing the hypotheses over the parametric Pearson test was appropriate.

## 4. Findings

The findings of the study are presented based on the specific research questions that guided the study.

Table 4. Relationship between Identification of Learner's Problems and Acquisition of Lifelong Learning Skills

| Test | Statistical parameters | Identification of learners' problems | Acquisition of lifelong skills by learners |
|---|---|---|---|
| Spearman's rho | R-value | 1 | .504** |
| | P-value | . | .000 |
| | N | 80 | 80 |

***. Correlation is significant at the 0.01 level (2-tailed).***

Statistically, findings show that there is a significant, positive, and relatively strong relationship between the identification of problems and learners' acquisition of lifelong skills (R-value 0.504**, p-value 0.000< 0.05). The positive sign of the correlation value implies that learners are more likely to acquire lifelong learning skills when teachers effectively identify learners' problems. Therefore, the hypothesis that states there is a significant relationship between the identification of learner's problems and learners' acquisition of lifelong learning skills was accepted.

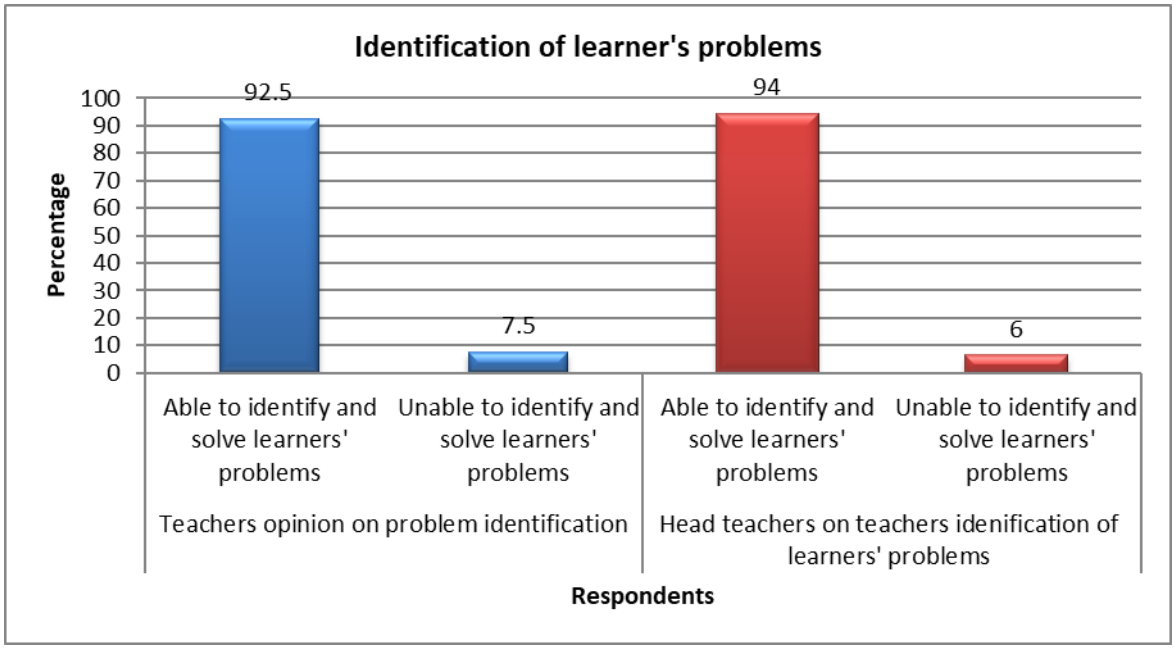


Figure 1. Comparing Teachers and Head Teachers Opinion on Problem Identification

Chi-Square test value=0.000 df=1 p-value=0.997

Table 5. Relationship between Use of Appropriate Instructional Methodologies and Acquisition of Lifelong Learning Skills

| Test | Statistical parameters | Use of appropriate instructional methodologies | Acquisition of lifelong skills by learners |
|---|---|---|---|
| Spearman's rho | R-value | 1 | .630** |
| | P-value | . | .000 |
| | N | 80 | 80 |

***. Correlation is significant at the 0.01 level (2-tailed).***

Statistically, findings show that there is a significant, positive, and strong relationship between the use of appropriate instructional methodologies and learners' acquisition of lifelong skills (R-value 0.630**, p-value 0.000< 0.05). The positive sign of the correlation value implies that learners are more likely to acquire lifelong learning skills when teachers effectively use appropriate instructional methodologies. Therefore, the hypothesis that states there is a significant relationship between the use of appropriate instructional methodologies and learners' acquisition of lifelong learning skills was accepted.

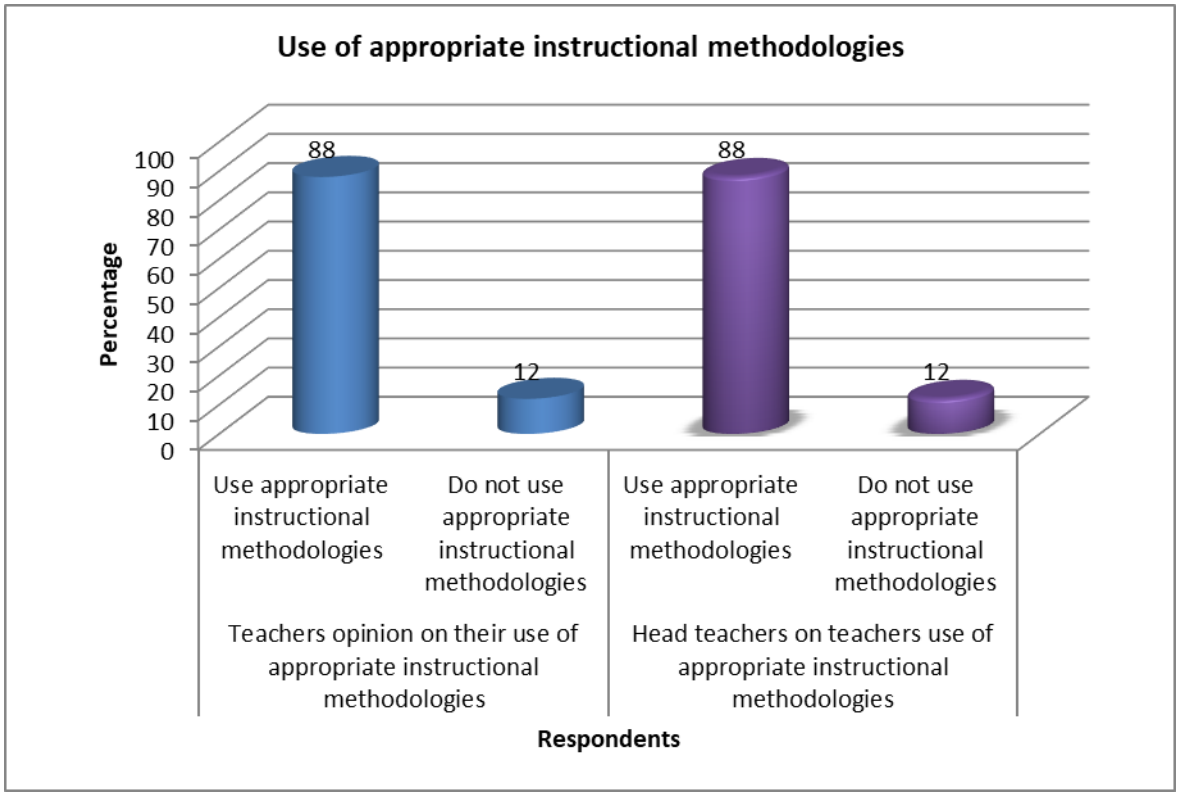


Figure 2. Comparing Teachers and Head Teachers Opinion on Teachers Use of Appropriate Instructional Methodologies

Chi-Square test value=0.000 df=1 p-value=0.997

Table 6. Relationship between Collaboration Learning and Acquisition of Lifelong Learning Skills

| Test | Statistical parameters | Collaborative learning | Acquisition of lifelong skills by learners |
|---|---|---|---|
| Spearman's rho | R-value | 1 | .515** |
| | P-value | . | .000 |
| | N | 80 | 80 |

***. Correlation is significant at the 0.01 level (2-tailed).***

Statistically, findings show that there is a significant, positive, and relatively strong relationship between collaborative learning and learners' acquisition of lifelong skills (R-value 0.515**, p-value 0.000< 0.05). The positive sign of the correlation value also implies that learners are more likely to acquire lifelong learning skills when teachers effectively work as a team. Therefore, the hypothesis that states there is a significant relationship between collaborative learning and learners' acquisition of lifelong learning skills was accepted.

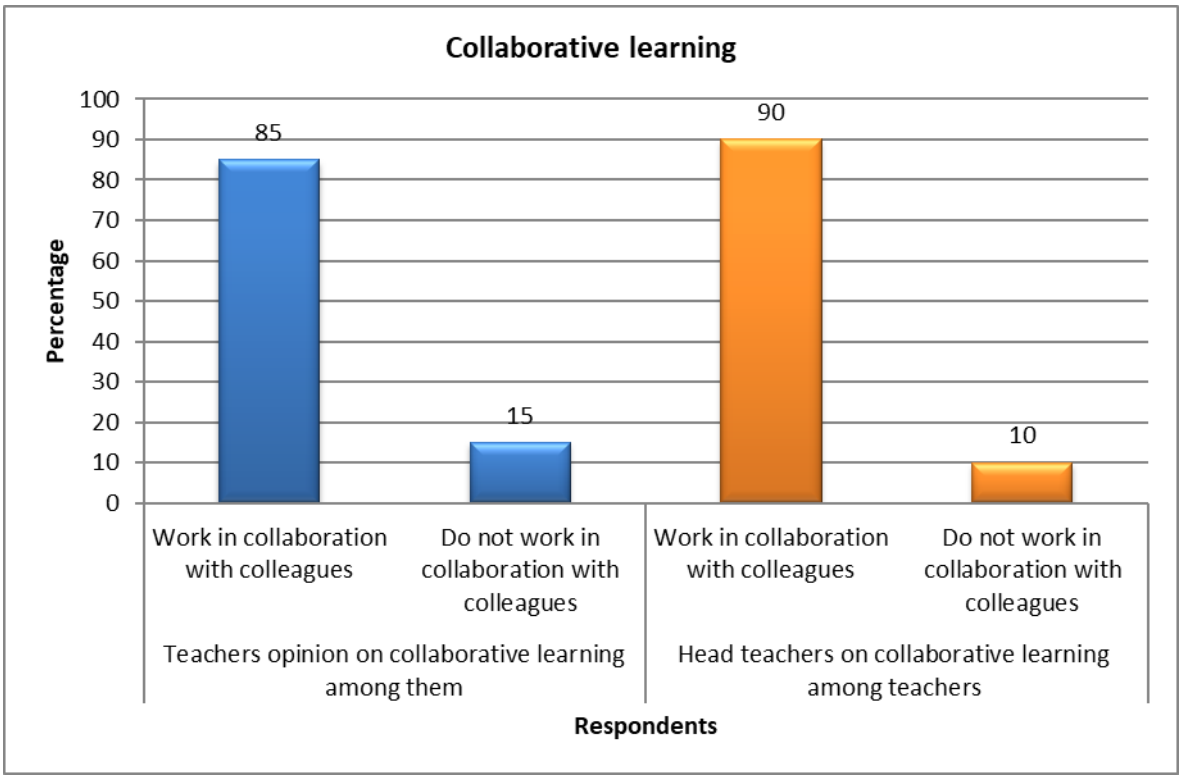


Figure 3: Comparing Teachers and Head Teachers Opinion on Collaboration Learning among Teachers and learners

***Chi-Square test value=0.48 df=1 p-value=0.486***

Comparing teacher's and head teachers' opinions on collaboration learning among teachers and learners, findings showed that both respondents do not significantly differ in their opinion (p-value > 0.05) with a majority of the teachers themselves 85.0% and head teachers 90% indicating that teachers do collaborate with colleagues and learners.

Table 7. Relationship between Integration of ICT in the Teaching Learning Process and Acquisition of Lifelong Learning Skills

| Test | Statistical parameters | Integration of ICT in the teaching-learning process | Acquisition of lifelong skills by learners |
|---|---|---|---|
| Spearman's rho | R-value | 1 | .556** |
| | P-value | . | .000 |
| | N | 80 | 80 |

*****. Correlation is significant at the 0.01 level (2-tailed).***

Statistically, findings show that there is a significant, positive, and strong relationship between the integration of ICT in the teaching-learning process and learners' acquisition of lifelong skills (R-value 0.556**, p-value 0.000< 0.05). The positive sign of the correlation value also implies that learners are more likely to acquire lifelong learning skills when teachers effectively integrate ICT into the teaching-learning process. Therefore, the hypothesis that states there is a significant relationship between the integration of ICT in the teaching-learning process and learners' acquisition of lifelong learning skills was accepted.

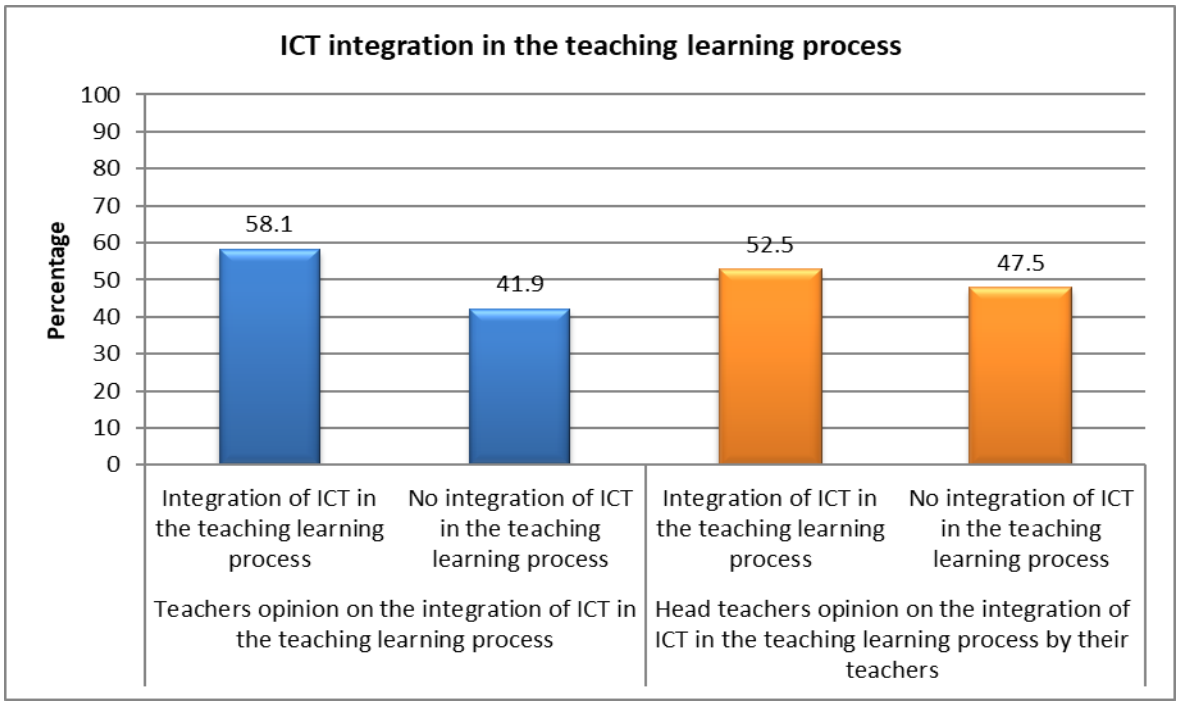


Figure 4. Comparing Teacher's and Head Teacher's Opinion on Teachers Integration of ICT in the Teaching Learning Process

***Chi-Square test value=0.29 df=1 p-value=0.589***

Comparing teacher's and headteacher's opinion on comparing teachers and head teachers opinion on teachers integration of ICT in the teaching-learning process both respondents do not significantly differ in their opinion (p-value > 0.05) with 58.1% of the teachers and head teachers 52.5% indicating that teachers integrate ICT in the teaching-learning process while 41.9% of the teachers and 47.5% of head teachers said that ICT is not integrated into the teaching-learning process.

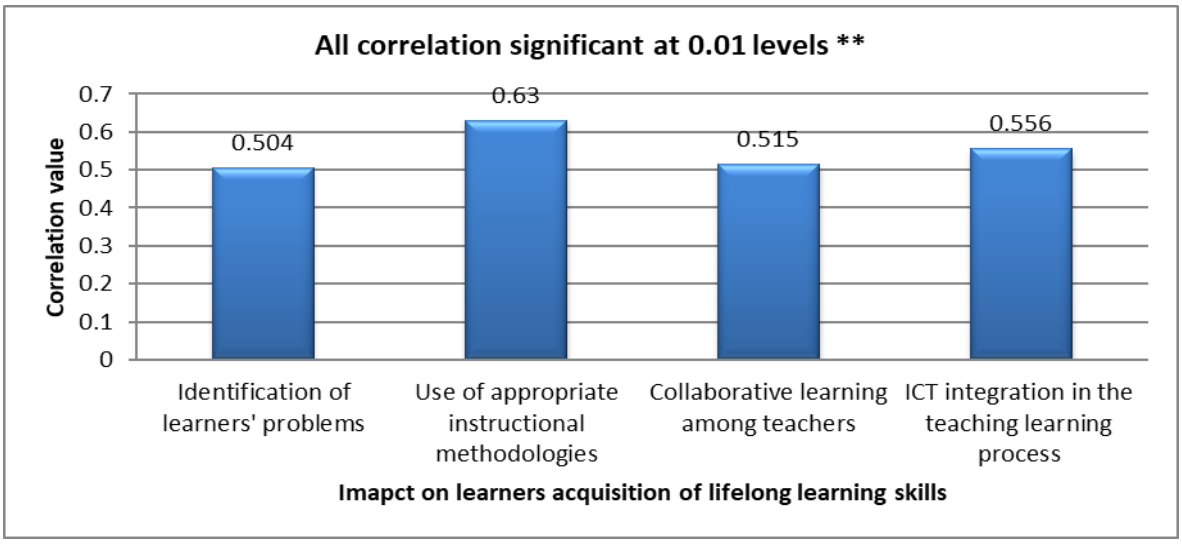


Figure 5. Comparing the Predictors of Integrated Project Based Approach on Learners Acquisition of Lifelong Learning Skills

Comparing the predictors of the integrated project-based approach on learners' acquisition of lifelong learning skills, findings show that the use of appropriate instructional methodologies has the highest correlation value (0.630**), followed by ICT integration (0.556**), collaboration learning among teachers (0.515**) and ability to identify learners problems (0.504**).

## 5. Discussion TC "Discussion of findings" \f C \l "1"

Findings showed that there is a significant, positive, and relatively strong relationship between the identification of problems and learners' acquisition of lifelong skills (R-value 0.504**, p-value 0.000< 0.05). The positive sign of the correlation value implies that learners are more likely to acquire lifelong learning skills when teachers effectively identify learners' problems. This is in congruence with Kember (2018) who theorizes that educators can use problem identification to seek solutions to resolve problems in the school environment that occur at the school, class, and individual levels. Problem identification is part of the scientific method, as it serves as the first step in a systematic process to identify, and evaluate a problem and explore potential solutions. Hence, according to the stranger test, problem identification statements need to be clear (i.e., unambiguous), objective (i.e., leaving no room or limited room for inferences), and specific enough for a stranger (i.e., an individual that is only provided with the problem identification statement) to be able to *observe* the learner's interest and identify whether the problem is present or absent.

Equally, findings showed that there was a significant, positive, and strong relationship between the use of appropriate instructional methodologies and learners' acquisition of lifelong skills (R-value 0.630**, p-value 0.000< 0.05). The positive sign of the correlation value implies that learners are more likely to acquire lifelong learning skills when teachers effectively use appropriate instructional methodologies. This finding is in congruence with Dunlap (1997) who posits that the appropriate use of instructional methodologies will help people to acquire lifelong skills that will boost their productivity and effectiveness. He identified four instructional methodologies that help students develop metacognitive and self-directed learning skills which are needed for them to be lifelong learners.

Concurrently, findings show that there is a significant, positive, and relatively strong relationship between collaborative learning and learners' acquisition of lifelong skills (R-value 0.515**, p-value 0.000< 0.05). The positive sign of the correlation value also implies that learners are more likely to acquire lifelong learning skills when teachers effectively work as a team. **T**his is in line with Laal & Laal (2012) as they highlight that collaboration has become a twenty-first-century trend. The need in society to think and work together on issues of critical concern has increased shifting the emphasis from individual efforts to group work, from independence to the community (Leonard & Leonard, 2001). In a collaborative learning setting, learners have the opportunity to converse with peers, present and defend ideas, exchange diverse beliefs, question other conceptual frameworks, and are actively engaged (Srinivas, 2011). Collaborative interactions are characterized by shared goals, symmetry of the structure, and a high degree of negotiation, interactivity, and interdependence that will facilitate set goals. Hence, Green (2002) opined that team members are obliged to rely on one another to achieve the goal.

Lastly, findings showed that there was a significant, positive, and strong relationship between the integration of ICT in the teaching-learning process and learners' acquisition of lifelong skills. The positive sign of the correlation value also implied that learners are more likely to acquire lifelong learning skills when teachers effectively integrate ICT into the teaching-learning process. This is in congruence with Lowther, et al. (2008) and Weert & Tatnall (2005) whose studies have shown that appropriate use of ICT can raise educational quality and connect learning to real-life situations (Lowther, et al. 2008; Weert and Tatnall 2005). Integration of ICT in teaching and learning is aimed at addressing the need to create a knowledge society and a technology-literate workforce for the twenty-first century. Schools need to adopt an information literacy curriculum, and learners need to develop their ICT and thinking skills and take responsibility for their learning (Huah, 2001).

### *5.1 Conclusion*

From the findings, it can be concluded that the integrated project-based approach to learning has a significant, positive, and relatively strong relationship to the acquisition of lifelong learning skills in pupils of government bilingual primary schools in Mbouda Sub Division.

### *5.2 Limitations of Study*

Some of the data collected from the questionnaires were inconsistent and wrongly filled; some respondents placed two ticks for the same question on the same rows, making the researcher unable to get their real point of view. The researcher was forced to accept the first tick which may not be the intention of the respondents. Some of the questionnaire items were not considered since they were not filled at all.

There were also methodological limitations (the use of survey research design), small sample size, validity, and reliability concerns. In addition, the sample population was small, prohibiting a larger look at the correlation between an integrated project-based approach and the acquisition of lifelong learning skills in pupils.

Some respondents went with some questionnaires, some refused because of not having time, and the communication between the researchers and respondents was a problem due to the language barrier. For this purpose, some questionnaires had to be translated to work with the participants. Translating the questionnaire from English to French language was challenging as it might change the original meaning of some concepts which may affect the responses.

Time constraint was another limitation, managing the school work and administration of the questionnaire in another region was not easy. Going to all the schools was not easy since they were far from each other and before my arrival, some of the respondents were not there. This contributed to the small sample size as well.

### *5.3 Recommendations*

Based on the identification of problems, teachers should be given the impunities and facilities that can help them to better identify pupils' problems and provide possible solutions so that pupils can acquire skills that can help them to better integrate into the community. Teachers should have in-service training on different methods of identifying learners' problems and

possible therapeutic ways of resolving them. This will help teachers to be versed in it and make pupils acquire lifelong learning skills.

Based on the appropriate use of instructional methodologies, it is recommended that teachers should use appropriate instructional methodologies such as problem-based learning, intentional-based learning, reciprocal teaching, and cognitive apprenticeship. This will help pupils to develop the metacognitive and self-directed learning skills which are needed to be lifelong learners. Using this type of methodology will engage learners in meta-cognitive activity needed to build knowledge, including life skills that learners can transfer to new situations.

Based on collaboration, the pupils, teachers, and community should work together on critical issues for the holistic development of the learners. Emphasis should shift from individual efforts to group work, from independent to community so that learners can easily acquire lifelong skills that can facilitate their integration in society. There should be mutual engagement of the community to solve problems together, share goals, symmetry of structures, and a high degree of negotiation, interactivity, and interdependence that will help pupils acquire and build lifelong skills.

Based on integrating ICT in the learning-teaching process, educators, and curriculum planners, should design and plan curriculums that can easily be integrated with ICT. To cope with the increasing pace and change, pupils need to know life skills for flexibility such as ICT skills. ICT should be used, applied, and integrated into activities, of teaching, learning, and working based on conceptual understanding that will help the pupils to acquire lifelong learning.

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**Authors contributions**

Enjei Joan Tembei in collaboration with Prof Kibinkiri Eric Len designed the topic. Enjei Joan Tembei the 1st author of the paper was responsible for study design, instruments' construction, data collection, data analysis, drafted the manuscript, proofread the manuscript and revised it. Prof. Kibinkiri Eric Len gave his input where it was deemed necessary and revised the paper for the purpose of scientific rigor. All authors read and approved the final

manuscript. The study was single carried out by Enjei Joan Tembei under the supervisory eyes of Prof Kibinkiri Eric Len who stands as a corresponding author in the paper.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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No additional data are available.



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