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Project-Based Learning Implementation Level and School Management Support for Critical Thinking Skills in Secondary Schools: Lessons from Ubungo Municipality, Dar es Salaam, Tanzania

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ABSTRACT: This study investigated about the implementation of project-based approach to teaching and learning by teachers, and support given by the management of school to enhance critical thinking skills. The study context was among secondary schools at Ubungo Municipality in Dar es Salaam, Tanzania. Objectives of the study focus on views from Heads of school and teachers' perceptions on: level of implementation of the project-based learning, and support given by the school management on the use of project-based learning, as well as the extent of students' acquisition of critical thinking skills. Guided by the transformational leadership theory, the study employed a mixed-methods approach with a convergent parallel design. A sample of 55 respondents, including heads of school and teachers was selected using purposive and stratified sampling techniques. The data were collected through questionnaires and interviews. The analysis was done using descriptive statistics and themes. Findings revealed that the implementation of project-based learning is at a moderate level across schools. This is due to the ability and readiness of teachers to use the project-based approach. Also, the level of school management support for project-based learning varies among schools. Thus, the management has to support in-service trainings and facilitate the use of pedagogical resources. Regarding the extent of students' acquiring critical thinking skills, the findings show that students' competence is at large extent. The study concludes that project-based learning and management support are two sides of the same coin. Recommendations are given that management of schools could maximize support for students to conduct projects for enhancing competence-based learning.

KEYWORDS: Level of implementation, project-based learning, school management support, critical thinking skills, 21st century skills.

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1. INTRODUCTION

Project-based learning is an approach to teaching and learning that teachers engage students in real-world, complex tasks that assist them acquire skills relevant to real-life contexts (Chen & Yang, 2019). With project-based learning, students engage in studying a particular theme or idea suggested by themselves or recognized authority including teachers (Schultz, 2010). Both individual and group projects are used to develop students' 21st century skills such as: communication, creativity, collaboration, and critical thinking skills. In this approach, students take a more active role than teachers in the teaching and learning process, as they are assigned specific tasks, which they complete and present to their peers under the teacher's guidance (Chiu, 2020; Schultz, 2010).

Globally, the project-based learning has been adopted in different education systems. In China, the approach has been integrated into school curricula, with emphasis placed on organizing learning activities that develop students' generic skills (Cintang, Setiawan & Handayani, 2017). In the Philippines, the approach has been shown to enhance students' critical thinking by involving them in real-life situations, making learning more meaningful (Lapuz & Fulgensio, 2020). In Indonesia, the project-based learning enables learners to work collaboratively, plan and organize tasks, negotiate responsibilities, and present information systematically, thereby improving their life skills (Syahril, 2018). Likewise, in Kenya, project-based learning has improved students' academic performance and attitudes, particularly in practical subjects such as biology (Wafula & Odhiambo, 2016).

Further, studies by Ash (2021), Melaniwati and Sofiana (2025), together with Rumfort, Sahib, Anshoryah, Oka, and Ramadhan (2025) indicate that project-based learning enhances students' ability to learn independently and collaboratively, thereby promoting

the development of diverse skills. This approach to teaching and learning is considered a dynamic model that actively engages students in higher-order thinking. Similarly, Ntseto (2015) emphasizes that school management teams are responsible for ensuring that adequate support systems are in place to facilitate curriculum implementation and innovation. This includes effective communication with educational stakeholders to ensure smooth teaching and learning processes including the use of problem-based learning.

In Tanzania, the Ministry of Education, Science and Technology, through the Tanzania Institute of Education and the National Examinations Council of Tanzania, recognize the importance of project-based learning by incorporating projects work into secondary school syllabus. Students are required to complete projects in their final year before sitting for the national examinations, and project activities are recommended in most subject syllabi (Munisi, 2017; URT, 2023a; URT, 2023b). This reflects the recognition of project-based learning as a valuable approach that provides students with opportunities to engage in real-world learning experiences for competence-based learning (Munisi, 2017; URT, 2023a; URT, 2023b).

Despite these benefits, several studies in Tanzania highlight challenges in the implementation of problem-based learning. The inquiry made by Hakielimu (2017) found that only a small number of teachers use problem-based learning in their teaching, which contributes to low student performance. This suggests that although teaching occurs, meaningful learning is limited. Likewise, Makunja (2016) reported that many teachers are reluctant to assign project work, which hinders the development of critical thinking skills among students. After the introduction of the Education and Training Policy of 2014 (2023) Edition, the Education Circular No. 5 of 2023 directed schools to engage in implementing most of educational reforms for competence - based education. For example, the reforms which relate to this study include: emphasis on competence-based learning in all levels of education including secondary schools, and integration of practical and vocational skills in education and training (URT, 2023b). Although these educational reforms were emphasized it seemed that in 2024 schools were eager to implement new pedagogical skills but with the need of school management support on how to practice teaching and learning for competence including the use of project-based learning approach. For this reason, the objectives of this study were to find out perceptions from heads of school and teachers on: the level of implementation of the project-based learning, and the manners in which school management support project-based learning for critical thinking skills in secondary schools. In addition, the extent of acquiring critical thinking skills by the students was also looked at. This study is therefore substantial to be conducted in order to share stakeholders' ideas from the context of Tanzania on project-based learning in the era of 21st century skills.

2. LITERATURE REVIEW

2.1 Theory Used in the Study

This study was guided by the Transformational Leadership Theory, which emphasizes building a unified and committed team through a shared vision, mission, and sense of purpose (Burns, 1978). The concept of transformational leadership was first introduced by James V. Downton in 1973 and later extended by James Burns in 1978. Then after, in 1985 Bernard M. Bass developed the theory by proposing methods for measuring its effectiveness (Bass, 1985). The theory encourages leaders to act with integrity and earn trust, articulate a clear compelling vision and inspire motivation and commitment, encourage creativity and innovation together with mentorship. As for followers of these leaders, the theory asserts that followers admirer and wish to emulate their leaders, challenged to think critically and find out means of solving problems as their leaders. Also, followers wish owns' individual needs and development to be valued (Bass, 1985; Burns, 1978).

This theory is relevant to the present study as it provides insight into the critical role of school management in supporting teachers during the implementation of project-based learning. The theory highlights how school leaders could influence teachers, who in turn facilitate students' learning through project-based learning. Moreover, the theory underscores the importance of building strong relationships between leaders and teachers to ensure successful implementation of innovative teaching and learning approaches including problem-based approach (Lin, Scott & Matta, 2019).

2.2 Previous Related Studies

2.2.1 Level of Implementation of Project-Based Learning

Studies from different contexts indicate the effectiveness of project-based learning in enhancing students' critical thinking skills. For example Qi (2021) examined the effects of project-based learning on students, and qualities required for K-12 teachers who engaged in project-based learning. The study aimed to conduct the following: explore how teachers implement project-based learning, identify its benefits, and examine its challenges. The study employed a narrative literature review to synthesize the findings. Thus, the findings from this study revealed that teachers use student-centered learning which based on the identified project rather than lectures, group work are also used to encourage students to work as a team, and teachers work as facilitators since they direct, guide and give feedback for improvement of students own project work. For this reason, the project-based learning was seen beneficial to students as follows: improves critical thinking skills, enhances problem-solving abilities, increases student engagement and motivation, promotes collaboration and team-work, and helps students connect learning to real-life situation. One of the major challenges found in the study is that teachers lack training in project-based learning methods. Through narrative literature review,

argument was given that project-based learning is beneficial for students in terms of attitudes towards learning and academic performance, together with the development of practical skills. Thus, the study concludes that project-based learning is an effective approach to K-12 education as it supports development of 21st century skills. However, for the implementation to be successful the approach requires teachers training, adequate resources and supportive school system. The study by Qi, (2021) assisted researchers of the present study to see the need for reviewing related literature in discussion of findings related to the level of project-based learning and school management support for critical thinking skills.

Further, Rini, Adisyahputra and Sigit (2020) studied to identify the effect of project-based learning, motivation, and visual, auditory and kinesthetic (VAK) learning style on high school students' critical thinking skills of the ecosystem topic. The study employed quasi-experiment with 2x2x3 factorial design. Simple random sampling technique was used to select 348 students for data collection by a motivation and learning style questionnaire and critical thinking skills test. The analysis of the data was done by General Linear Model Uni-variate ANOVA at $\alpha = 0.05$. The results include the following: there is a significant effect of the project-based learning on students' critical thinking skills. Motivation affects students' critical thinking skills, VAK learning style does not affect critical thinking skills, and interaction model of learning, motivation, and learning styles affect the students' critical thinking skills. The study concludes that critical thinking ability can be improved through the project-based learning by involving several factors such as students' motivation and learning styles. The study by Rini et al. (2020) widen's knowledge to researchers of the present study on the usefulness of including questionnaires as one of the research tools for collecting the quantitative data.

2.2.2 School Management Support for Project-Based Learning

Regarding school management support for fostering critical thinking skills, Senguo and Ilomo (2020) investigated the effect of school management on students' perceived academic achievement among the Seventh-Day Adventist secondary schools in North-East Tanzania. Through survey research design questionnaires were used to collect data from 311 students who were selected randomly and analyzed through the Statistical Package for Social Sciences. The study established that school management was effective in planning, motivating and encouraging students to work hard toward maximized academic achievement. However, the school management was perceived ineffective in accepting ideas from students and involving parents in decision making. Also, students were satisfied with their academic achievement and trust that their academic competence increases, but were undecided whether teachers and parents are satisfied with their academic achievement. Recommendations were given that school leaders need to improve on sharing ideas with students and involving parents in decision making processes, the school to enhance the interaction among students, parents and teachers for more understanding of perception on students' achievement, together with school leaders to improve their managerial practices to support academic achievement. Thus, the study by Senguo and Ilomo (2020) assisted researchers in the present study to opt for the sampling technique and data analysis methods which assisted to understand role played by the school management in supporting students to become competent in thinking critically for better academic achievement and practical life-skills application.

Likewise, Richard and Munisi (2025) explored on the strategies that are used by school management in generation of financial resources for enhancing competence-based education in the Evangelical Lutheran Church in Tanzania, Northern Diocese secondary schools in Hai District, Kilimanjaro region. A qualitative approach with a case study design was used, involving 31 participants. The study was navigated by two theories: the Social Constructivism theory and the Bottom-up theory. Tools which were used for data collecting were: interviews, questionnaires, observations and document reviews. Thematic analysis method was used to analyze the data. The findings revealed that strategies which include: introduction of school projects, increase the number of students enrollment, and the contribution of funds from the owner of the schools were useful in the supporting of the implementation of competence-based education. The study concludes that financial resources are effective in enhancing school management in implementation of competence-based education. Recommendations were given to heads of school that could propose project plans which will result in the generation of more funds for supporting the provision of quality education. The study by Richard and Munisi (2025) which was done in the context of non-government secondary schools gave highlights to the present study which is under the context of government schools.

3. METHODOLOGY

3.1 Research Approach and Design

The study utilized a mixed-methods research approach using a convergent parallel design. This approach involves collecting both qualitative and quantitative data simultaneously, analyzing them independently, and then comparing the results to determine whether they confirm or contradict each other (Creswell & Creswell, 2023). The convergent parallel design allows the researcher to gain a comprehensive understanding of the research problem by integrating findings from both data types. The design also, assisted to overcome the limitations of each approach to the study, as the strengths of one approach compensate for the weaknesses of the other (Creswell & Creswell, 2023).

3.2 Area of Study, Population and Sampling

Ubungo Municipality was an area of the study. This area is one of the Districts of Dar es Salaam Region. The administrative boundaries include: Kinondoni District to the North and East, Ilala District to the South and East, Kibaga District to the North, and Kisarawe District to the West. The main features of Ubungo Municipality include center for different levels of education institutions including a number of primary and secondary schools (*https:Dar es Salaa.go.tz*). In this study, the population consisted of heads of school and teachers. There were 36 heads of school and 1,270 teachers. Purposive sampling was used to select heads of school, while stratified sampling was applied to select teachers. The final sample of population comprised of 5 heads of school and 50 teachers, making a total of 55 respondents. Teachers were further grouped by gender, and simple random sampling was used to select respondents from each group (Mugyenyi & Mokoro, 2022).

3.3 Data Collection and Analysis

The data collection process was done by using tools which are questionnaires and interview guide questions. Questionnaires were administered to teachers, included closed-ended questions in order to collect quantitative and qualitative data. Further, the semi-structured interview guides were used to gather qualitative data from heads of school. The qualitative data were recorded, transcribed, and analyzed using thematic analysis. Quantitative data obtained from the questionnaires were analyzed using descriptive statistics with the assistance of the Statistical Package for Social Sciences version 20 which stipulated results by frequency and percentages (Creswell & Creswell, 2023; Mugyenyi & Mokoro, 2022).

3.4 Validity, Reliability, and Ethical Consideration

In order to ensure validity and reliability, the research instruments were piloted before the actual data collection. This process assisted researchers to refine the tools and ensure they effectively captured the required information. As a result, the instruments were considered appropriate for addressing the research objectives and capable of producing consistent results if used in similar studies (Creswell & Creswell, 2023). As for ethical consideration, the respondents acknowledged by filling the informed consent forms and willingly accepted to be involved in the study. Confidentiality and anonymity were strictly maintained by the researchers for the purpose of protecting the respondents' data. In addition, the researchers ensured transparency in reporting findings and upheld academic integrity by avoiding plagiarism, fabrication, and falsification of the data (Creswell & Creswell, 2023; Mungyenyi & Mokoro, 2022).

4. RESULTS

The results obtained though questionnaires and interviews are presented in this section. The objectives of the study were to find out perceptions from heads of school and teachers on: the level of implementation of the project-based learning, and the manners in which school management support project-based learning for critical thinking skills. In addition, perceptions' on the extent of students' acquisition of critical thinking ability was also inquired. The five secondary schools involved in the study are identified as school A, school B, school C, school D, and school E. The heads of these schools are given pseudonyms as HoS-A, HoS-B, HoS-C, HoS- D, and HoS-E. The results sub-sections include: demographic information, presentation of analysed data for objective one, also for objective two as well as the analysis of the data on the extent of students' acquisition of critical thinking abilities. The following is the presentation of the data analyzed.

4.1 Demographic Information

Table 1: Respondents' age, gender, and working experiences

Characteristics	Category	Frequency	Percentage
Age	18-27	5	9.1
	28-37	27	49.1
	38-47	15	27.3
	48-57	8	14.5
	Total	**55**	**100**
Gender	Male	21	38.2
	Female	34	61.8
	Total	**55**	**100**
Working experiences	Less than a year	5	9.1
	2 years	5	9.1
	3 years	6	10.9
	4 years	3	5.5
	5 years and above	36	65.5
	Total	**55**	**100**

Source: Field Data, (March, 2024)

Table 1 presents demographic data of the respondents respectively including; age, gender, and working experiences. From Table 1, it shows that majority of the respondents were in the age ranges: 28-37(49.1%) years, and 38-47(27.3%) years. This signifies that respondents were matured enough and knowledgeable to provide the data for this study. As for gender, males participated more 34(61.8%) than females, this could be attributed to the geographical location and environment reasons whereby most female teachers preferred to work closer to where they can accommodate themselves together with their families. However, both males and females had a great contribution to data collection. With regard to working experiences out of 55 respondents 5 (9.1%) had less than one year of working experience and 36 (65.5%) had five years of working experiences and above. This could mean that teachers who were involved in the study have qualified skills and enough experiences in teaching students and this contributed much on gathering the expected data.

4.2 Level of Implementation of Project-Based Learning

Table 2: Level of project-based learning Implementation

Level of Project Implementation	High level		Moderate level		Low level	
	f	%	f	%	f	%
	12	24	32	64	6	12

Source: Field Data, (March, 2024)

The data in Table 2 show that at the frequency of 12 that is (24%) of the respondents indicated that there is high level of project-based learning implementation, while at the frequency of 32, that is (43%) of the respondents indicated a moderate level of implementation, and the frequency of 6 that is (12%) of the respondents opted for a low level of project-based level of implementation. Therefore, the results show that the level of implementation is perceived by the majority of teachers as moderate. Thus, most teachers are implementing the project-based learning approach to teaching and learning in a moderate way, others are implementing it at the high level and few of them are implementing the approach at the low level depending on the nature of the environment and other factors which make the implementation of the project-based learning to vary from one school to another.

Through interviews with heads of school on the level of implementation of project-based learning, one head of school A said that, *"the use of project-based learning in the teaching process by teachers is at a lower level".* (Interview with HoS-A on March 15, 2024). Another head of school commented that, *"In fact the method it's applicable by teacher to a moderate level in my school"* (Interview with HoS-C on March 19, 2024). The head of school-A gave reasons for the level of using project-based learning as moderate by saying that "*this is because not all teachers are skilled enough to teach through project-based learning methods or strategies*" (Interview with HoS-A on March 15, 2024). Further, the head of school-C said that "*in my school we encourage team teaching. This makes teachers to help one another on project matters*" (Interview with HoS-C on March 19, 2024). As for the low level of implementation of the project based learning in teaching and learning the head of school-A added that "*…here environment matters a lot…"* (Interview with HoS-A on March 15, 2024).

Therefore, in schools where teachers are at high level of implementing the approach could mean that there might be a good environment, in terms of resources and expertise that encourage the use project-based learning approach. The schools' where there is a moderate level of implementation of project-based learning it might be due to inadequate expertise, inadequate material and environment which surround the schools. For the case of a lower level of the implementation of project-based learning it could be understood as teachers tend to use other methods to teach students. The data imply that not all teachers use project-based learning as an approach to teaching and learning process. Thus, it requires more efforts to make it happen in the classroom.

4.3 School Management Support for Project Based Learning

Table 3: School Management Support for Project Based Learning

Support given by management to PBL	SA		A		D		SD	
	f	%	f	%	f	%	f	%
Supervision support	19	38	29	58	1	2	1	2
Mentoring support	14	28	33	66	2	4	1	2
Monitoring support	16	32	26	52	6	12	1	2
Provision of motivation	18	36	28	56	2	4	1	2
Access to curriculum	20	40	26	52	3	6	1	2
Assessment strategies	16	32	25	50	3	6	1	2

Enhance Technology platforms	8	16	30	60	10	20	2	4
Collaboration with community	17	34	29	58	3	6	1	2
Creativity	12	24	35	70	2	4	1	2
Time scheduling flexibility	15	30	31	62	4	8	1	2
Putting budget	10	20	31	62	8	16	1	2
Provision of teaching and learning resources	17	34	29	58	3	6	1	2

Key: SA= Strongly Agree, A= Agree, D= Disagree, SD= Strongly Disagree

Source: Field Data, (March, 2024)

The data from Table 3 show responses from research respondents on their perceptions based on support given by school management for project-based learning. For instance, the support is given in access to curriculum with the frequency of 20 that is (40%) of the respondents, supervision support given for pedagogical activities with the frequency of 19 which is (38%) of the respondents, provision of teaching and learning resources with the frequency of 17 that is (34%) of the respondents, time scheduling flexibility with the frequency of 15 that is (30%) of respondents, support from community collaboration with the frequency of 17 which is (34%) of respondents and budgeting for the frequency of 19 that is (38%) of the respondents who agreed that supervision support is highly given by the school management, mentoring support with the frequency of 14 (28%) of the respondents, monitoring with the frequency of 16 (32%) of the respondents, motivation with the frequency of 18 (36%) of the respondents, assessment strategy with the frequency of 16 (32%) of the respondents , few respondents with the frequency of 8 (16%) who strongly agreed that technology platforms are supported by the school management in enhancing the project-based learning. Moreover, several respondents agreed on means of support given for project-based learning. For example, with the frequency of 35 which is (70%) of respondents agreed that creativity for project-based learning is supported by the management, and mentorship support is greed by 33 frequency which is (66%) of respondents.

However, respondents disagreed on the support provided by the management like supervision supports with frequency of 1 which is (2%) of the respondents, mentoring support with the frequency of 2 that is (4%), monitoring support with the frequency of 6 which is (12%), motivation supports with the frequency of 2 that is (4%) and access to curriculum with the frequency of 3 which is (6%). In addition, with the frequency of 2 which is (4%) of the respondents strongly disagreed that management of schools support technology platforms. Other means which seem not to be supported by the management of schools with 1 frequency each include creativity and provision of motivation.

During interviews one head of school reported that ‘‘*through good relationship and collaboration with other teachers make everyone responsible in the working place, the provision of motivation among staff members makes everyone to do the best in his or her classroom’’* (Interview with HoS-B on March 20, 2024). Likewise, another head of school emphasized that *“team work among teachers encourages better teaching methods”* (Interview with HoS-C on March 19, 2024). This situation enables teachers to increase their effort in their working areas due to the support provided to them.

Moreover, cooperation between school management and community is another management support that assists students in their learning process in a peaceful environment. During the interview, with head of school D one’s said *“management tries a lot to cooperate with parents and community surrounding the school so that students can be safe in, and outside the school environment’’* (interview with HoS D on March 21, 2024). The data therefore imply that collaboration is a useful means of support to be enhanced by the school management since parents and community are involved in school matters and rest assured that their moral and even material support are appreciatively recognized.

Regarding assessment strategies the head of school E, was of the view that “*assessment is done, through provision of examination to students, presentations and provision of feedback on the activities that they were assigned and are awarded marks’’* (Interview with the HoS-E on March 25, 2024). Also, the HoS-A said “*nowadays we assess student’s competence*” (Interview with the HoS-A on March 15, 2024). However, the HoS-C commented that “*we still need to know how best we can assess student’s competence*” (Interview with the HoS-C on March 19, 2024). Thus, the data imply that assessment strategies is an important aspect in the development of project-based learning since school management together with teachers are to design authentic assessments that evaluate students’ ability to apply their learning in real-world context this can involve the use of rubric, presentation and peer evaluation among students.

In general, the kind of support given to teachers and students by schools’ management varies from one school to the other differ.

4.4 The Extent of Students' Acquisition of Critical Thinking Abilities

Table 4: Extent of Students' acquisition of critical thinking abilities

Critical thinking skills abilities	Large extent		Some extent		Less extent		Not at all	
	f	%	f	%	f	%	f	%
Creativity	23	46	16	32	9	18	2	4
Analytical	16	32	25	50	5	10	4	8
Problem solving	16	32	27	54	5	10	2	4
Open-mindness	15	30	24	48	7	14	4	8
Objectivity	14	28	26	52	8	16	2	4
Logical reasoning	14	28	27	54	8	16	2	4
Reflection	15	30	26	52	8	16	1	2
Effective communication	14	28	27	54	7	14	2	4

Source: Field Data, (March, 2024)

Table 4 shows that with the frequency of 23 that is (46%) of the respondents indicated that creativity is gained by students to a large extent. Teachers perceive that project-based learning contributes to students gaining of creativity which is an element of critical thinking skills. Also, with the frequency of 25 that is (50%) of the respondents indicated that analytical skills are attained by students to some extent. Also, with the frequency of 27 which is (54%) of the teachers mentioned that problem solving is gained by students to some extent as the attribute of critical thinking skills due to the use of project-based learning.

Moreover, with the frequency of 24 that is (48%) of the teachers mentioned that open-mindedness is gained by the students to some extent. The data show that teachers perceive that project-based learning makes students to gain open mindedness which is also an aspect of critical thinking skills. One head of school said that;

> From my experience I see students gain different critical thinking skills though not all students gain these skills for instance, the way students respond to the questions asked by teachers, they can express themselves in front of others. This shows that they acquire certain skills (Interview with HoS D on March 21, 2024).

Another head of school said that "*you can see some students with reasoning ability and able to present their work"* (Interview with HoS E on March 25, 2024). Also, the HoS-B said that "*.an open mind leads to competent mind*" (Interview with HoS-B on March 20, 2024).

In addition, with the frequency of 26 (52%) of teachers reported that objectivity is achieved by students' to some extent. The data shows that teachers perceived that project-based learning contributes to student's gaining of objectivity skills which is a characteristic of critical thinking skills. Further, with a frequency of 27 (54%) of teachers revealed that logical reasoning is reached by the students to some extent. A high proportion of the teachers revealed that students gain logical reasoning skills through the use of project-based learning.

Further, the frequency of 26 that is (52%) of teachers said that reflection is gained by the students to a moderate extent. The data show that large proportion of teachers contributed that project-based learning result to students gain reflection skills which is an element of critical thinking skill. Students gain reflection skill as the results of the use of project-based learning. Therefore, the large proportion of teachers' responses is under favorable attitude of some extent on the reflection of skill obtained by the students.

Generally, skills such as problem solving, open-mindedness, objectivity, logical reasoning, reflection, effective communication, and analytical are perceived by teachers as gained to some extent and creativity is gained to a large extent. Therefore, if more efforts are done students can gain critical thinking abilities by engaging them in effective activities that will help them to acquire maximum level of skills necessary to their life and community in this 21st century era.

5. DISCUSSION

In this section the researchers discuss the findings for the study conducted in Ubungo Municipality secondary schools. The findings on the level of implementation of the project-based learning are at a moderate level and focus on the ability and readiness of teachers in using the approach. As for the managerial support to teachers on the use of the project-based learning the findings show that the areas of support differ from one school and the other. This leads to the discussion on the schools' need for in-service training and facilitation of the pedagogical resources. In addition, the findings on the students' extent of acquisition of critical thinking skills show the high extent of competence-based learning.

5.1 Level of Implementation of Project-Based Learning

The study suggests that the levels of implementation of project-based learning vary among the schools. As for the case of lessons from Ubungo Municipality secondary schools, the level of project-based learning practices is at moderate level. However, according

to the findings, the main reason for this level could be the ability and the readiness of teachers in applying the approach: Teachers are regarded as facilitators of project-based learning approach. Teachers are to plan, advice, follow-up, give feedback on project work conducted by students (Schultz, 2010; Pushor & Murphy, 2010). For this reason, teachers are to be knowledgeable enough to practice this approach in all stages of teaching and learning. Teachers ought to know research problems which can be inquired by students, involve students in the choice of research problems for the projects, facilitating students in investigating the problems as well as formatively assessing and awarding students to the end of the project (Schultz, 2010; Pushor & Murphy, 2010). Therefore, the approach requires teachers to acquit themselves with research methodology procedures and be ready for the tasks demand associated with the type of projects or needs of secondary school students. However, if teachers will have no or low ability and interest in research methodology matters then the use of the project-based approach will be questioned or minimal used in secondary schools (Makunja, 2016; Qi, 2021; Rini et al., 2020).

5.2 School Management Support of Project-Based Learning

The findings of the current study show that school management support for project-based learning varies from one school to another and influence the extent of gaining critical thinking skills to students. Management support is essential and valuable in supporting project-based learning through the provision of resources, motivation, professional development, and establishing clear expectations aligning with the school's educational goals and objectives (Meney 2024; Ntseto, 2015; Richard & Munisi, 2025; Senguo & Ilomo, 2020).

5.2.1 In-service Trainings

School management plays an important role in enhancing the use of the project-based learning with students. The management of schools has to identify the ability of their teachers on using the approach so that different trainings can be organized to meet teachers' needs. This is also among the characteristics of the transformative leadership theory which encourage leaders to work closer to their employers in order to understand their needs and assist them (Bass, 1985; Burns, 1978). In-service trainings are very crucial in the 21st century so that teachers become competent with the development of science and technology since they are also models to their students (Kafanabo, 2024). In similar vein to the theorists Bass and Burns, Ngara (1995 p.45) argues that "the quality of the teacher is important because teachers can only give what they have". Ngara, (1995) gives an example which is also reviewed in the study conducted by Qi (2021), and supported by Kafanabo, (2024) that if teachers are highly qualified in terms of paper qualifications but do not use approaches to teaching and learning that provide the best learning experience to students, then the students might not adequately benefit from the learning experience. Thus, school management has to ensure that teachers' are trained enough to implement various pedagogical skills including project-based learning.

5.2.2 Facilitation of Pedagogical Resources

The school management is responsible for providing varieties of materials to teachers that are essential in supporting them when teaching their students. Teachers also are to be equipped with different resources, and be able to use ready-made resources, improvised resources and in particular modern resources (Kafanabo, 2024; Meney, 2024; Munisi et al., 2026; Ndomondo, 2024). Facilitation of teaching and learning resources requires funds. Thus, it is important to school management to budget for provision of pedagogical resources of different types. In addition, school management should be accountable and transparent to the owners of the schools for the use of funds for supporting teaching and learning. By doing this the school management will be in position to network or share with other stakeholders like parents and various government bodies on supporting pedagogical facilities (Ndomondo, 2024; Munisi et al., 2026; Richard, 2025).

5.3 Competence-Based Education: Project-Based Learning

The findings revealed that students gained critical thinking skills to a large extent when the project-based learning is used in teaching and learning. The project-based approach informs competence-based teaching and learning. Competence-based pedagogy is advantageous to students who are the centre of teaching and learning. This kind of approach assists students to become competent as they use the 21st century skills. Such skills include problem solving, analysis and decision-making, creativity, collaboration, self-awareness and self-confidence, and effective communication (Jepchumba & Kirimi, 2024; Komba & Shukia, 2023; Munisi, 2025). Regarding the aspect of critical thinking skills, the project-based learning promotes students skills for finding answers to research problems by identifying the research gap, generating the data, analysing the data, discussing and make conclusions together with recommendations to the study (Ash, 2021; Makunja, 2016; Munisi, 2017; Rumfot et al., 2025). For this reasons, the approach is very useful to Tanzanian students whose philosophy of education is for self-reliance (Nyerere, 1967; URT, 2023a). According to Mhando (2012), the philosophy of education for self-reliance calls for emancipatory consciousness to Tanzanians as it aims to develop citizens who have values, attitudes, skills and knowledge as well as empowered to critical thinking skills.

6. CONCLUSION AND RECOMMENDATION

Based on the findings, the study concludes that although project-based learning is recognized and implemented in secondary schools, its effectiveness in fostering critical thinking skills is limited by moderate implementation and contingent management support.

Therefore, improving the practice of teaching for competence-based, and school management support for teaching and learning are two sides of the same coin. The study recommends that school management teams to provide regular in-service training on project-based learning for teachers and ensure adequate funding for teaching and learning materials required for project-based learning. Future studies should examine the role of digital technologies in supporting project-based learning.

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