The Influence of Play Based Learning Project on Learner Performance in Science and Elementary Technology and English Language Subjects

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ABSTRACT

This study investigated the effects of Play-Based Learning (PBL) on student performance in Science and Elementary Technology (SET) and English language subjects at primary schools in Ruhango Sector, Ruhango District. The main objective of this study was to investigate the effects of play based learning on student performance of SET and English language subjects in Ruhango Sector, specifically the study focused on the effect of play based learning project, perception regarding the teacher's roles on learner performance of SET and English language and establish the relationship between play-based learning project and learners' performance of SET and English language subjects in primary school of Ruhango sector. The theories that guided research were Theory of Constraints (TOC) is a process designed to identify and eliminate constraints in organizational processes that hinder the achievement of organizational goals and Social Cognitive Theory is based on his central concept of self-efficacy. This study used a descriptive and correlational research designs. The target population was 150 people including headteachers and teachers. The sample size of was 96 teachers with backgrounds in SET and English language subjects and 12 headtechers. This study used questionnaire as a primary data source. The questionnaire involved written questions to which the teachers were required to write answers individually and interview guides were used to collect information from headteachers. Microsoft Office Excel was used for analyzing the results from the questionnaire and interview. The Pearson Correlation was used to test one hypothesis. The study concluded that Play Based Learning played an importance role in learner performance of Science and Elementary Technology and English language subjects through play-based activities. The research revealed a strong positive correlation between Project-Based Learning (PBL) initiatives and students' academic achievement in English language courses (r=.9650, p=0.001). Similarly, a significant positive association was observed between Project-Based Learning (PBL) endeavours and learners' performance in Science, Elementary and Technology (SET) subjects (r=.9836*, p=0.001). The study recommends that teachers should regularly monitor content and adjust settings for individual learners. Finally, teachers should apply practices associated with engagement by determining if learner enjoy the game or want to play.*

Keywords: English Language, Learner Performance, Play Based Learning, Primary School, Science and Elementary Technology
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I. INTRODUCTION

Across the world, play is a powerful tool for enhancing teaching and learning environments, attracting learners' interest, and enhancing language acquisition. However, primary schools often struggle with its integration due to misconceptions, curriculum inadequacies, inadequate teacher professional development, and large class sizes restricting play freedom (United Nations Children's Fund [UNICEF], 2023). Learning through play has emerged as an important strategy to promote student engagement (Parker et al., 2022). In Indonesia for instance, poor learner performance through play was due to internal factors such as lack of motivation from family and teachers (Mauliya et al., 2020). Further, Khalil et al. (2022) stated that the poor learner performance of SET and English language learning through play was due to a disagreement between policy and practice. He also stated that social cues, cultural norms, and physical challenges in Palestine and Ireland hindered play-based approaches adoption.

In addition, in United State for instance, the teachers struggled to recognize the academic value of play, lack formal training, and pressure to direct instruction for prescribed outcomes and play-based online learning environments had the potential to create conflicts between learner (Maslin et al., 2023). The digital game-based STEM learning appeared to be differentially effective for different learning outcome, different types of game, and different subject. Furthermore, our results indicated that the game-design elements added for content learning were more effective than those added for gaming experience (Gui et al., 2023).

Most countries in Africa have not saved either by above disturbing occurrence. In Ghana, Hassan et al., (2020) pointed out that absenteeism, poor feeding, language problem, negative teachers' attitude, inadequate support from

administration, and poor school environment were the causes of poor academic performance. additionally, Mendenhall et al., (2021) in Ethiopia, Tanzania, and Uganda, there are gaps between basic education frameworks and teacher education curricula, affecting the effectiveness of play-based learning. Competency-based curricula provide professional development opportunities, but sustainability and impact of continuing professional development are crucial for teachers' professional growth.

Play based learning in Rwanda is pointed out as one of key method for children's development and the crucial role of teachers in delivering quality education at primary school. The learner performance of SET and English language learning through play in primary schools is significantly influenced by teaching with the use play materials, teachers' attitudes, students' traits, play goals, and teachers' training, school environment, administration (UNICEF, 2023). The study sought to investigate the issues faced by primary teachers in student performance of SET Science and Elementary Technology and English language learning through play in Ruhango sector.

Even though play based leaning is a promising solution, it still suffers from effective learner performance in Science and Elementary Technology and English language subjects. The primary school learners in particular continue to perform poorly in their SET and English language classes. In Rwanda, specifically Ruhando District, Jääskä et al. (2021) reported that teaching methods will enable learning and practising complex project activities in a simulative environment and are challenging at the same time.

1.1 General Objective

The general objective of this study is to investigate the influence of play based learning on learner performance of SET and English language subjects through play in primary schools of Ruhango Sector, Ruhango District, Southern Province of Rwanda.

1.2 Specific Objectives

i. To identify the influence of play based learning on improvement of learners' performance in SET and English language subjects at primary schools in Ruhango sector

ii. To examine the influence of perception regarding the teacher's roles in PBL on learners' performance of SET and English language subjects through play in primary schools of Ruhango sector.

iii. To determine the relationship between play-based learning project and learners' performance of SET and English language subjects in primary school of Ruhango sector.

1.3 Hypothesis

H_{01}: There is no relationship between play-based learning on learners' performance of SET and English language in primary schools of Ruhango sector.

II. LITERATURE REVIEW

2.1 Theoretical Underpinning
2.1.1. Theory of Constraints

Theory of Constraints (TOC) is a process designed to identify and eliminate constraints in organizational processes that hinder the achievement of organizational goals Blackstone (2010). Blackstone explained that TOC is utilized in production planning, control, and project management to identify critical bottlenecks in processes and systems, thereby enhancing performance. Project management often focuses on task delivery and the belief that completing activities within expected timelines will result in project delivery. However, this can lead to excessive pressure to meet deadlines and frequent project re-planning, making project management a hectic exercise.

Heang et al. (2021) argued that Play-based learning is a teaching method that primary schools should adopt, combining experiential activities, research, and repetition to encourage students to explore and understand lesson content, making it a valuable pedagogical practice. Play is a crucial tool for children to learn about the world, themselves, and develop essential skills for study, work, and relationships. The researchers have found a link between play and the development of SET/English language skills. Taylor & Boyer (2020) pointed that PBL is a child-centered approach that focuses on children's academic, social, emotional development through engaging, developmentally appropriate learning experiences. They added that PBL helps learner in social and academic benefits because they utilize technology to enhance play through facilitation, support, assessment, and utilization. Further, Play-based learning aids in physical development by teaching children balance, hop on one foot, throw and catch a ball, and practice various skills (Taylor & Boyer, 2020).

2.1.2. Social Cognitive Theory

Social Cognitive Theory is based on his central concept of self-efficacy. It suggests that individuals' beliefs about their capabilities significantly influence their performance. The text highlights the dynamic interaction between people, their personal factors, their behaviour, and their environments. Strengthening positive self-belief in employees is a crucial performance management objective (Schunk, 2012).

Play-based learning involves child-directed, adult-guided, scaffolded learning objectives, incorporating playful elements. For instance, PBL has various effects on perceptual, cognitive, behavioural, affective, and motivational outcomes (Mauliya et al., 2020). Further, Johnson (2022) pointed that play-based learning environments foster cognitive development by allowing children to explore and learn about the world, developing problem-solving, critical, and creative skills through exploration.

For effective PBL, there is a need for teachers and school management to adapt an individual knowledge and needs, show empathy, value, and treat students fairly in proper manner. The outcomes of PBL should be positive and valuable for development of SET/English language skills (Kavlu, 2017). PBL had various effects on perceptual, cognitive, behavioural, affective, and motivational outcomes. The school managers and teachers must able to determine their role in children's play (Garaigordobil et al., 2022).

2.2 Empirical Literature

The previous studies showed that children who are intellectually competent tend to be experts' players. Their cognitive abilities lead to more complex play themes and more symbolic pretend performances. For instance, Fatima et al. (2021) determined the effect of play-based learning on developing logical reasoning in school education in Islamabad. The study found that play-based learning did not significantly impact the development of logical reasoning among students in both the control and experimental groups at early childhood education, regardless of gender. In addition, King et al. (2020) the educational impact of ecotourism on children, focusing on how play in these sites helps them learn about and with nature, highlighting the lack of research on its educational impact on young children, who often view nature as detached from human control. The researcher shows the importance of early childhood education in fostering a healthy relationship between nature and humanity.

Teachers all expressed positive views on the play-based approach, stating that children enjoy playing, never get bored, and look forward to it. Byusa et al. (2022) pointed that chemistry education research has shifted from teacher-centered pedagogy to a learner-centered approach. Game-based learning has become a beneficial instructional approach, emphasizing hands-on and mind-on activities. The results show that educational games improve students' conceptual understanding of chemistry concepts. In addition, according to VSO (2022) the greater integration of play-based learning in education policy at a national level and combined with this, "Let's Learn through Play" also promoted peer learning amongst primary teachers. Furthermore, Alam (2022) studied the digital games have become a popular framework for classroom teaching, promoting programming and computational thinking in pre-college classrooms. He added that showcasing how diverse games offer an innovative opportunity to educate on various concepts. Moreover, Hartt et al. (2020) examined the effectiveness of game-based learning in planning education. The results indicated that learners found the game-based lecture more engaging, highlighting its potential as a suitable strategy for education planning.

Several studies on play-based learning have progressed with different area of the study, others with different concepts. The study found that using computer games for teaching mathematical history and language, such as animation and gameplay for equations and coordinate axes, significantly enhances academic achievement motivation. Lei et al. (2022) studied on the Effects of game-based learning on students' achievement in science: a meta-analysis. Results from the 41 primary studies of 6256 participants showed heterogeneity among effect sizes. The random effects model results showed a positive effect. In addition, Murtagh et al. (2022) explored the relationship between play-based learning and achievement in mathematics in Palestinian elementary school children. Forty teachers from eight schools received training in play-based pedagogies and follow-up support visits from programme staff, four matched schools served as the control group. Grade-appropriate tests were administered to all students in two consecutive school terms. Results revealed that the intervention group attained higher test scores than the control group in both terms.

Therefore, primary school learners in particular continue to perform poorly in their SET and English language classes across countries. It is out of this background that this study sought to investigate the effects of play-based learning on learner performance of SET and English language subjects at primary schools in Ruhango district in Rwanda.

III. METHODOLOGY

3.1 Study Area

Ruhango is a sector in Ruhango district, Southern Province, Rwanda. Ruhango sector in the one of nine sectors which are known as Kinazi Sector, Byimana, Bweramana, Mbuye, Ruhango, Mwendo, Kinihira, Ntongwe and Kabagari. Rwandan in-service teacher training program, but there are still unable to perform or distinguish student performance in play-based learning project in certain primary schools in Rwanda including Ruhango Sector. many organizations including Right To Play put intensive efforts and initiatives to facilitate these schools to achieve higher performance in English language learning through play. Teaching methods enabled learning and practising complex project activities in a simulative environment and are challenging at the same time (Jääskä et al., 2021).

3.2 Research Design

Research design is the comprehensive plan or structure of a research project, outlining all strategies a researcher will employ to tackle the research problem (Creswell, 2014). The study utilized descriptive research design and interviews to investigate the effects of play based learning on learner performance of SET and English language subjects through play in primary schools of Ruhango Sector. The study utilized a mixed method in which both quantitative and qualitative methods of data collection were employed. The study utilized qualitative methods like interviews and quantitative methods like closed-ended questionnaires to investigate the effects of play based learning on learner performance of SET and English language subjects through play in primary schools of Ruhango Sector.

3.3 Population and Sampling

The study involved a total of 108 participants from twelve primary schools located in Ruhango sector in Ruhango district, Rwanda. The population was obtained by using Table of Krejcie and Morgan (1970) to determine sample size. Following the Morgan Table, the total population size of 150 participants were calculated to be 108 participants.

Table 1
Target Population and Sample Size Distribution

School	Teachers SET	Teachers English	Head Teachers	Target Population	Sample Size
EP Nyundo	13	7	1	21	15
GS Ruhango ADEPR	8	8	1	17	13
GS Ntenyo	6	5	1	12	9
GS Nyamagana	6	6	1	13	10
EP Musamo	6	4	1	11	8
GS Muyange	4	5	1	10	7
GS Munini	5	7	1	13	9
GS Ruhango Adventiste	5	5	1	11	8
EP Tambwe	5	4	1	10	7
GS Gikoma Gvt	4	6	1	11	8
GS Muhororo	3	5	1	9	6
GS Ruhango Catholic	3	8	1	12	8
TOTAL	**68**	**70**	**12**	**150**	**108**

The researchers selected these primary schools through stratified and simple random sampling. Practically, the researchers visited each selected primary school and contacted head teachers and teachers who were related to SET and English language subjects. After introducing to them, the researchers administrated the questionnaire and interviews instruments to 108 headteachers and teachers. The interviews were conducted through purposively. Thus, the total sample was 96 teachers with English and SET background plus 12 headteachers.

3.4 Research instruments

Data collection instruments such as tests, questionnaires, and interview guides were utilized to gather essential data. The questionnaire was developed by the researchers and 96 teachers were expected to fill in the questionnaire and they were requested to write at the end of questionnaire about their opinions on teachers' role perception on a PBL and learner performance. In addition, interview was used to collect information from 12 headteachers of the sampled schools.

3.5 Data Analysis Methods

Microsoft Office Excel was used for analyzing the results from the questionnaire and interviews that could be given to the partners such as headtechers and teachers. The software was utilized to create graphs to effectively explain the research findings and different variables of PBL and learners' performance.

IV. FINDINGS & DISCUSSIONS

4.1 Questionnaire and Interviews Response Rate

The main purpose of this study is to investigate the effects of play-based learning on learner performance of SET and English language subjects through play in primary schools of Ruhango Sector, Ruhango District, Southern Province of Rwanda. The study administered 96 questionnaires to English and SET teachers. Four teachers were absent in the period of data collection. Out of 96 questionnaires, 92 were returned by teachers. The study also conducted 12 interviews. All interviewees were responded the interviews guides. These return rates are respectively 100 % for head teachers, 95.83% for teachers. According to Babbie (2010) shared that a response rate of 50% is considered adequate, 60% good and above 70% very good. Therefore, the response rate from these respondents was very good.

Table 2
Response Rate

Category	Sampled	Responded	Response Rate
Teachers through Questionnaire	96	92	95.83%
Headteachers through Interviews	12	12	100%

4.2 Demographics of Respondents

The study sought to establish demographic characteristics about the respondents. These included age, gender, marital status, education qualification and work experience. The findings were presented in Table 3.

Table 3
Descriptive Statistic Showing the Demographic Distribution of Respondents

Demographics	Options	Teachers		Headteachers	
		Frequency	Percentage	Frequency	Percentage
Age	Below 18 years	0	0.0	0	0.0
	19-34 years	43	46.8	2	16.6
	35-45 years	31	33.7	7	58.3
	46-60 years	17	18.5	3	25.0
	Above 60 years	1	1.0	0	0.0
	Total	92	100.0	12	100.0
Gender	Male	53	57.6	8	66.6
	Female	39	42.4	4	33.4
	Total	92	100.0	12	100.0
Marital status	Single	22	23.9	2	16.7
	Married	61	66.4	8	66.7
	Widow(er)	2	2.2	1	8.3
	Divorced	5	5.5	1	8.3
	Total	92	100.0	12	100.0
Education qualification	Secondary schools	76	82.6	0	0.0
	University	16	17.4	12	100.0
	Total	92	100.0	12	100.0
Work experience	Under 2 years	11	11.9	1	8.3
	3-5 years	27	29.4	4	33.4
	6-10 years	29	31.5	5	41.7
	11-15 years	9	9.8	1	8.3
	Above 15 years	16	17.4	1	8.3
	Total	92	100.0	12	100.0

As shown in Table 3, descriptive statistics show that proportion of 43(46.8%) of teachers sampled were aged between 19-34 years while there is no teacher who aged under 18 years. For head teachers, 7(58.3%) were aged

between 35-45 while there are no head teachers who aged under 18 years. With respect to gender, 53(57.6%) of teachers and 8(66.6%) of head teachers are male. The masculine gender dominated in all categories of the total of respondents. This is justified that there are more males than females engaged in education because various factors including socio-cultural factors for gender inclusion (Agirumubyara & Ngabonziza, 2024; Buhigiro et al., 2024). Based on the marital status of the respondents, for teachers 61(66.4%) were married, 22(23.9%) were single. For head teachers, 8(66.7) were married and 2(16.7%) were single.

For the level of education, for teachers, 76(82.6%) of teachers had a secondary school education level and 16(17.4%) had a university or higher institute education level. For head teachers, all had a university or higher institute education level, the number is represented by 12(100%).

On the working experience, a big percentage of teachers appeared in the range of 6-10 years of experience 29(31.5%) and 27(29.4%) were in the range of 3-5years working experience, while 9(9.8%) were in the range of 11-15years of working experience. For head teachers, big percentage appeared in the range of 6-10 years of working experience 5(41.7%), and smallest number was in the range of under 2 years, 11-15years and above 15 years of working experience 1(8.3%) in primary school teaching.

4.3 Findings from Teachers

Findings from teachers included learner performance improvement, perception regarding the teachers' roles of PBL and relationship PBL project and learner performance.

4.3.1 PBL and Learner Performance Improvement in Primary School

The study found that the total teacher respondents, 74(80.4%) of teachers stated that PBL project had the influence on empowering primary school learners to become independent and autonomous in SET/English language. The rest indicated that they said "No". It is revealed that, out of 74(80.4%) of teachers who stated that PBL project had the influence on empowering primary school learners to become independent, 28(37.8%) of the teachers said that learners choose play materials independently, 16(21.6%) of teachers argued that learners acquire knowledge by his or her own efforts. These findings collaborate with the previous research that argued for relevance of PBL in making Learners competent and independent in their learning journey ((Taylor & Boyer, 2020; Mauliya et al., 2020).

Table 4
PBL and Learner Performance improvement in Primary School

Statements	Options	Teachers	
		Frequency	Percentage
PBL project and empowering primary school learner to become independent and autonomous in SET/English language subjects	Learners acquire knowledge by his or her own efforts	16	21.6
	Learners develop the ability for enquiry and critical evaluation	3	4.1
	Learners choose aims of subject independently	5	6.8
	Learners choose play materials independently	28	37.8
	Learners choose methods and tasks independently	9	12.2
	Others	13	17.5
	Total	**74**	**100.0**
PBL project and social development and behaviours of primary school learner in SET/English language subjects	Improving collaboration with other learners	20	23.2
	Change their behaviour regarding society	12	13.9
	Increasing relationship between learners and teachers	4	4.6
	Sharing experience with other learners	33	38.4
	Improving cooperation between teachers and learners	2	2.3
	Others	16	16.3
	Total	**86**	**100.0**

Additionally, 86(93.5%) of teachers shared that PBL project had the influence on social development and behaviours of primary school learners. The rest indicated that they said "No". It is revealed that, out of 86(93.5%) of teachers who pointed out that PBL project had the influence on social development and behaviours of primary school learners, 33(38.4%) of the teachers agreed that PBL help in sharing experience with other learners, 20(23.2%) revealed that PBL help in improving collaboration with other learners.

Further, all teachers pointed out that PBL project had the influence on empowering primary school learners to become independent and autonomous, choose play materials independently. This implies that improved education quality requires teacher professional development, play-based learning demands new roles, pedagogies, and

approaches, requiring new approaches and approaches (UNICEF, 2023). Therefore, the study findings revealed some effects of PBL in improving the learners' performance in terms of empowering primary school learners to become independent and autonomous, social development and behaviours, interactive and creative, reflective problem-solving of primary school learners in SET/English language subjects. This implies that learners that active learning, focusing on practical application of knowledge, encourages long-term intellectual, physical, and social development. Play-based active learning exposes learners to complexities, promotes motivation, and connects school and outside life (Taylor & Boyer, 2020).

4.3.2 Perception regarding Teachers' Role of PBL on Learner Performance in Primary School
The study revealed that 92 teachers of primary schools, all teachers, (100%) of the respondent answered "Yes". Additionally, teachers' perception in term of learner involvement in interactive and playful learning approaches in SET/English language were only "Very Good" available to 41(44,6%) of the teachers' respondents. Likewise, 37(40.6%) of teachers stated that the perception was "Good" and 5(5.5%) of teachers the perception was "Excellent". This implies that the teachers were gathered the information about the play environment, play regulation, play based learning coordination (Mauliya et al., 2020).

Table 5
Perception regarding Teachers' role of PBL on Learner Performance in primary school

Statements	Options	Teachers	
		Frequency	**Percentage**
Teachers' role perception on PBL project in term of learner involvement in interactive and playful learning approaches in SET/English language	Excellent	5	5.5
	Very good	41	44.6
	Good	37	40.2
	Acceptable	3	3.2
	Fail	0	0.0
	Total	**92**	**100.0**
Teachers' role perception on PBL project in term of all learners received equal attention due to their mental and physical abilities and inner moods	Excellent	13	18.6
	Very good	47	67.2
	Good	8	11.4
	Acceptable	2	2.8
	Fail	0	0.0
	Total	**70**	**100.0**

Based on teachers' perception in term of all learners received equal attention due to their mental and physical abilities and inner moods, 70(76.1%) had a good perception on learners and the rest had a bad perception. Some respondents added the teachers' perception were "Excellent" represented by 13(18.6%). Hence the majority of the respondents indicated "Very Good" with 47(67.2%).

Therefore, the study findings revealed that teachers' perception in terms of learners have received equal attention due to their mental and physical abilities and inner moods; teachers have adapted to individual knowledge and needs, show empathy, value in SET/English language; and how are there opportunities for supporting SET/English language learning through play in Primary schools. These roles are relevant for all types of play in the spectrum. In each teacher's role, there are opportunities for supporting learning through play. Teachers have reported differing beliefs about intervening in child-led activities (Hargreaves et al., 2014).

4.3.3 Recognition the influence of PBL Project and Learner Performance in Primary School
The study found that teachers recognized the influence of PBL on learner performance. This is confirmed by 100% of teachers. In addition, the majority of respondents 51(55.5%) believed that play-based learning positively impacted learners' social, 21(22.0%) said the emotional impact, and 2(2.8%) stated the cognitive development impact. This implies that play-based learning involves learning while at play, with definition debated. It differs from broader play, where learning isn't necessary for activity to be considered play for development of SET/English language skills (Kavlu, 2017).

Table 6

Respondents by recognition the influence of PBL project and learner Performance

Statements	Options	Teachers	
		Frequency	**Percentage**
PBL Project and Learner Performance in Primary School	Positively impact learner's social	51	55.5
	Positively impact learners' physical	4	4.3
	Positively impact learners' emotional	21	22.0
	Positively impact learners' cognitive development	2	2.8
	Total	**92**	**100.0**

4.4 Correlation Analysis

Correlation analysis was done between PBL and learner performance of SET and English language subjects in primary schools of Ruhango sector.

The study found a significant positive relationship between PBL project and learner performance in English language subjects (r=.9650*, p=0.001) and BPL project positively and significantly related to learner performance in SET subjects (r=.9836*, p=0.001). This supports the null hypothesis is rejected.

Table 7

Correlation Analysis

Variables tested		Pearson correlation	Significance	Decision on null hypothesis
PBL project Vs Learner performance	ENGL	.9650	.001	Rejected
	SET	.9836	.001	Rejected

*Significant on the level (α <=0.05)

The hypothesis is stated in the following way: There are no statistical difference at (α <= 0.05) for the influence of applying PBL on learning SET/English language subjects. To answer this, the researcher used the average marks of SET/English language subjects for the learners of primary schools as learner performance variable.

4.5 Findings from interviews

This section contains information from interviewees (head teachers). The information given is related to the general objective of this study, that is to investigate the effects of play based learning on learner performance of SET and English language subjects through play in primary schools of Ruhango Sector, Ruhango District, Southern Province of Rwanda.

4.5.1 PBL and Learner Performance Improvement in Primary School

The interviewees were asked to express their views on play-based learning in improving learner performance in SET and English language subjects in primary schools. All headteachers affirmed that the PBL improved learner performance and there are reasons for this. The improvement of learner performance are numerous: the PBL empowers schools primary learners to become independent and autonomous, PBL empowers school primary learners to acquire knowledge by his/her own efforts and PBL empowers school primary learners to choose aims, play materials and methods of subject independently.

The hand out the effectiveness of play-based learning project in learner performance in primary schools. They said that: "*Playful pedagogies are proven to be more effective in promoting social, emotional, physical, cognitive, and creative skills than traditional or highly guided approaches in primary school classrooms*". They added that: "*demonstrated by students learning under a more playful condition, with the results of students learning under a less-playful condition*".

4.5.2 The Opportunities of PBL Project for Supporting Learners' Performance

The interviewees were asked to give answer whether there are the opportunities of PBL project for supporting learners during teaching of SET/English language subjects and put the reasons. All headtechers confirmed that The PBL project is an opportunity for learners to improve SET subject and English language subject in primary schools. When learners study through play, they learn how to communicate, collaborate, and share responsibilities. They answered that: "*learners apply concepts of quantity, science and movement to real life, learners communicate with*

classmates and negotiate differences in points of view, learners learn from trial and error, using imagination and problem-solving skills, and learners derive satisfaction from their own accomplishments".

4.5.3 Effect of active PBL on Learner Performance in Primary School

Interviews with various school headtechers confirmed that active PBL project impacted on learner performance of SET and English language subjects. The interviewees confirmed that the active PBL impacted on learners' social, the active PBL impacted on learners' physical, the active PBL impacted learners' emotional, and the active PBL impacted on learners' cognitive development. They said that: "*the real value of Project-based learning is to enhance students' higher level in terms of creative, problem-solving, and integrated application, by exploring real problems in small groups, thereby acquiring core concepts and principles of the subject.*"

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The study concluded that teachers of SET/English language subjects and headteachers believed PBL project had a positive effect on learner performance in primary schools of Ruhango sector. In addition, they had a positive response towards a play-based learning project in primary schools. They believed that play-based learning is a promising solution for improving learner performance in SET/English language subjects, particularly for primary school learners. this study found that the play based learning help learners to empower primary school learners to become independent, autonomous, and problem-solvers through play-based learning projects However, they were ensuring about the use of PBL project is still have the issues such as lack of play materials, time allocation for learning play activities, lack of knowledge and skills required to implement PBL, overpopulation in classroom.

5.2 Recommendations

The study recommended that headteachers and teachers should use the present study to improve learners' performance in SET/English language subjects by teacher control. In addition, the headteachers and teachers should regularly control content and adjust settings for individual learner. Finally, head teachers and teachers should apply practices associated with engagement by determining if learner enjoy the game or want to play.

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