CONTRIBUTION OF GAME-BASED LEARNING IN ENHANCING THE IMPLEMENTATION OF LEARNER-CENTRED APPROACH IN PUBLIC PRIMARY SCHOOLS IN KAHAMA MUNICIPALITY, TANZANIA

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Abstract

This study assessed contribution of game-based learning in enhancing the implementation of learner-centred approach in public primary schools in the Kahama Municipality. Specifically, the study intended to find out the contributions of game-based learning in enhancing the implementation of a learner-centred approach in public primary schools. The study was guided by constructivism theory of learning founded by a Swiss psychologist, Jean Piaget and Lev Vygotsky, a Soviet Psychologist in the 20th century. The study employed mixed research approach with cross-sectional survey design. The study involved 265 participants who were selected through stratified and purposive sampling. Data were collected through questionnaires and structured interviews. The data were analysed using descriptive statistics through SPSS version 23 and thematic procedures. The findings revealed that game-based learning (GBL) contributes to the development of creativity, lesson interest, problem-solving skill, collaboration and long lasting memory. It also builds critical thinking skill, expression ability and confidence. Moreover, it lessens absenteeism and provides fun among pupils in enhancing the implementation of a learner-centred approach (LCA). The study recommends the need for educational stakeholders, including the government through the Ministry of Education, Science and Technology to set short, medium and long-term plans for ensuring that game-based learning is used effectively to enhance the implementation of a learner-centred approach in schools.

Keywords: *Contribution, Game-Based Learning, Enhancing, Implementation, Learner-Centred Approach, Public Primary Schools*

INTRODUCTION

Game-based learning is a fun technique that engages pupils in a fully academic learning experience. To prove development in learning, pupils have to learn in a real learning environment and repeating when they made mistakes that is trial and error (GCU, 2021). Game-based learning is thus an active innovative teaching and learning strategy which teachers use in presenting learning contents and skills through educational games to encourage active learning. It is a learning that is oriented in games. The improvement in science and technology has compelled more emphasis on game-based learning around the world as active instruction pedagogy for the acquisition of 21stcentury skills. This enables learners to live in this world of work after schooling (Samaroo, 2019). In western countries like USA, the increasing need for skills in science, technology, engineering and Mathematics fields increases the need for the use of game-based learning as an innovative instruction strategy to acquire 21st-century skills (Hartt et al., 2020). Teachers implement a learner-centred approach through game-based learning (An & Mindrila, 2020). Teachers in India use game-based learning as a style of presenting knowledge to implement a learner-centred approach. The pedagogy stimulates the learning process to avoid theory and boredom classes because children enjoy playing games (Teri, 2022).

The Long-term Education Reform and Development Plan (2010-2020) in China emphasized on ability to improve students' learning, practice and innovation which led to the application of game-based learning strategy to make the implementation of a learner-centred approach effective. This is because the desire of learning rests on the interesting materials, methods used by instructors and the modes of delivery that attracts students to participate in the lesson (Zhang, 2018 & Zhao et al., 2021). In African countries, Nigerian teachers implement the learner-centred approach by using various methods (Adewunmi, 2020). They use game-based learning as a learning strategy in classroom instructions to promote the teaching and learning process in the classrooms (Pearl & Eberechukwu, 2021). In Ghana, the introduction of Standard-Based Curriculum (SBC) emphasises the use of game-based learning to avoid repetition and memorization in learning process. The play-based learning is used in the classrooms to promote the growth and development of Ghanaian girls and boys to build confidence and critical thinking (Brakopowers, 2022).

In East Africa, countries are not left behind in using game-based learning as an innovative classroom instruction strategy. In Kenya, game-based learning is applied in the classrooms to enable primary school children to develop learning skills in Mathematics and English language (Matheka, 2021). Teachers use 'Tizi' games which is a gaming platform for interactive learning maths, reading and language. It also used for learning sign language, logic and memory to create ability in problem-solving and building up cognitive ability as per the needs of competence-based curriculum (CBC) to connect theory and practice. Game-based learning helps in the understanding of difficult topics and decision making (Obura, 2021). Kanja and Paschal (2023) asset that games provide instant feedback and raise deeper linking between theoretical thoughts and actual-world practices to make learning more important and unforgettable among learners. Although, game-based learning is used in Kenyan schools, it is still facing challenges because teachers and parents still lack understanding of its benefits and misconceptions of integrating play in learning (Cordeiro, 2021).

Tanzanian teachers implement a learner-centred approach through the use of various participatory strategies such as question and answers, demonstration, field trips, role plays and game-based learning. However, in Tanzanian public primary schools, game-based learning is not given more emphasis in classroom instruction. Rwezaura (2016) notes that the mostly instructional strategy used in primary schools is the lecture method. Also, Julius and Mkulu (2022) posited that the implementation of a learner-centred pedagogy using innovative instructional approaches was not sufficiently applied in public primary schools. Kussa (2017) notes that implementation of LCA in English language classes is quite fruitless because of large number of pupils in a single class, insufficient in-service training, pressure to fulfil topics, difficultness of the language and lack of inspiration among teachers and pupils. The government of Tanzania has taken a variety of initiatives to make sure that teachers get the opportunity to attend professional development programmes for the improvement of the instructional processes. In 2014, the Tanzania in partnership with a UK-Aid fund known as Education Quality Improvement Program (EQUIP-Tanzania) provided continuous professional development for in-service training (INSET) to standard one, two and three teachers to improve literacy, numeracy and other skills (EQUIPT, 2017). The teachers were also required to provide seminars to other teachers when they came back to their schools. Shinyanga region, particularly Kahama Municipal Council, was among the areas that were engaged in the programme for teachers to change from a traditional teaching approach to a learner-centred approach. Ndomba (2021) notes that the knowledge and understanding of teachers on subject matters have to be equipped to enable them to accommodate challenges in this era of innovation. The learner-centred approach emphasizes the students to have possession in their lesson process (URT, 2016). This means that students would get autonomy in their leaning to construct knowledge through active participation in the lesson. Because pupils are not given autonomy in the learning process, they just learn by memorizing and not by constructing knowledge by themselves. This leads them not being able to acquire the 21st century skills (critical thinking, creativity, collaboration, problem-solving and communication) as per the primary school curriculum. Since a learner-centred approach insists pupils' autonomy in the lesson process, it needs learning strategies that allow engagement during instruction for its effective implementation. Therefore, this study sought to assess the contributions of game-based learning in enhancing the implementation of learner-centred approach in public primary schools in Kahama Municipality. This is because there was limited research done on the current study in the selected area. The study specifically aimed to find out the contributions of game-based learning in enhancing the implementation of a learner-centred approach in public primary schools in Kahama Municipality.

LITERATURE REVIEW

Theoretical Lens

This study was guided by constructivism theory of learning founded by a Swiss psychologist, Jean Piaget and Lev Vygotsky, a Soviet psychologist in the 20th century. According to Shah (2020) for Piaget, the theory explains that the learner learns by constructing knowledge in his or her mind through actions. The learners have the role of being logical and critical thinkers. Jean believed that new knowledge is built upon existing one and experience. The learner links new ideas with his or her prior knowledge. Drew (2020) notes that learners learn through experience. They think about the new experience and compare them to the old one. For Vygotsky, learning is a co-operative procedure and knowledge improves from persons' collaborations; this means that knowledge is built socially. Lev believed that learning is a social event due to peer work through the zone of proximal development and scaffolding (Brau, 2018; McLeod, 2019). The instructor has to provide learners with the opportunity and incentives to construct knowledge and not dump it on them (Kouicem, 2020). The theory enables the learners to construct knowledge by themselves to avoid rote learning and memorization of information from the teachers. It also enables the learner to have learning autonomy in the learning process. It promotes pupils learning interest, motivation, critical thinking, creativity, collaboration and problem-solving skills. Moreover, it enables the learner to engage fully in the lesson process. The theory also helps learners to build communication skill due to the fact that they share ideas with peers in a precise and concise way. In the same vein, the theory promotes learner's reasoning capacity. It also builds learners' confidence, fosters sustainable learning due to the fact that learners create knowledge by themselves therefore they are motivated to have continuous learning (Roberts, 2020). Constructivism theory to be applied effectively in the classroom it needs a learning strategies that promotes its application. Learner-centred approach also needs the learners to be active agent in the learning process.

The government guidelines in the curriculum need teachers to implement a learner-centred approach in their teaching and learning practices by using diverse participatory learning strategies (TIE, 2019; URT, 2016). Despite this need, teachers in reality do not implement a learner-centred approach through game-based learning effectively in public primary schools in Kahama Municipality. This situation led to learning difficulties among learners since the techniques used encourage them to practice rote learning and memorization of information (QAOR, 2022). The Learner-centred approach is rooted into constructivism theory of learning which emphasizes learners to construct knowledge by themselves through their experience in their minds by interacting with their peers. Learners can construct knowledge when they integrate the new idea with the existing experience in their minds and share those ideas with their learning peers. But, this is not done compared to the needs of game-based learning, learner-centred approach and the primary school curriculum. Hence, this study intended to fill that gap by assessing the contribution of game-based learning in enhancing the implementation of a learner-centred approach in public primary schools in Kahama Municipality.

Contribution of Game-Based Learning

Game-based learning practices in elementary schools provides fun to learners during the lesson process (Avdiu, 2019). This study exposes the contribution of GBL practices and it shows its effect in motivating pupils intrinsically. However, the contribution of GBL in the improvement of the implementation of a learner-centred approach is not well established by the study. GBL is seen also to improves pupils' attitude and their development in mathematics achievement (White & McCoy 2019). The study established the benefits of GBL in the improvement of pupils' attitude and their development in mathematics achievement. Unlike this study, the former did not show the contribution of GBL in enhancing the implementation of LCA. Mfeka & Thomas (2019) established that GBL develops pupils' achievement in English Language skills. This study focused on the language skills achievement and it showed the input of game-based learning on the pupils' achievement but what is still yet known is the contribution of game-based learning in improving the implementation of a learner-centred approach in public primary schools. The researchers tried to show the benefits that GBL possesses in the pupils learning process but nothing is shown in the improvement of the implementation of a learner-centred approach. This triggered the researcher to conduct this study.

Moreover, studies by (Aremu & Adebagbo 2022; Yeboah et al.,2023) argue that game-based learning improves mathematics performance and lessens absenteeism. In these studies, the findings show the contribution of digital game-based learning in learning mathematics and how it foster pupils' attendance. However, there is no information revealed on how game-based learning using any type of game can contribute to the enhancement of a learner-centred approach in public primary schools. Furthermore, the GBL has been witnessed to encourage learning, foster concentration, motivate and nurture sustainable learning (Seabi, 2021). Not only these contributions identified by studies but also GBL increases the learners' achievement than the traditional way of instruction (Christian et al., 2020). Additionally, studies (Farhan 2017; Godfrey & Mtebe 2018; Lee & Choi 2020; Ngorosho 2018; Zaibon & Yunus 2021) indicate that game-based learning is an effective way for enhancing classroom learning. The revealed information did not indicate the contribution of game-based learning in improving the implementation of a learner-centred approach. That is why the researcher was motivated to conduct a study to fill the existing gap.

According to the arguments provided by different scholars, game-based learning worldwide has been seen to have a diverse contribution to pupils' cognitive, emotional and social development whether it is digital, digital-free, or traditional games. Zeng et al. (2020) note that cognitive development means that the students gains knowledge and skills that they intended to acquire. Emotional development, the pupils gain when they are motivated intrinsically or extrinsically during the lesson process. They also develop socially when they interact with their peers during the lesson process. Game-based learning is seen to be the most strategy to provide diverse benefits to learners. What is not yet well established in public primary schools is the contributions of game-based learning in enhancing the implementation of a learner-centred

approach. Thus, this compelled the researcher to conduct the study to look on how game-based learning contribute in the promotion of the implementation of a learner-centred approach in public primary schools.

Methodology

The study adopted a mixed research approach in a way that both quantitative and qualitative were employed. The study used a cross-sectional survey design and it was done in Kahama Municipality by using 265 participants who were sampled using stratified and purposive sampling. Data were collected through questionnaire and structured interview. The data were analysed quantitatively and qualitatively using descriptive statistics for quantitative data and thematic analysis for qualitative data, respectively. The information for quantitative data presented using tables while narration and quotes were used for qualitative information.

Results and Discussion

Contributions of GBL in Enhancing the Implementation of Learner-Centred Approach

This study's objective was developed to enable the researcher to find out the contributions that game-based learning can provide to enhance the implementation of a learner-centred approach in public primary schools in Kahama Municipality. In this objective, the findings are discussed based on sub-themes because the respondents provided a number of the GBL contributions in enhancing the implementation of LCA.

Table 1 *Benefits of GBL in Teaching and Learning Process*

The table shows the responses provided by teachers on the contributions of game-based learning to improve the utilization of LCA.

Teachers' Responses	Frequency	Per cent
Creativity and critical thinking	21	20
Problem solving skills	18	17
Lesson interest and lessens absenteeism	30	29
Collaboration and long lasting memory	18	17
Fun, expression ability and confidence	15	14.2
None of the above	3	2.8
Total	**105**	**100**

Source: Field Data (2023)

Table 2 *Benefits of GBL in Pupils' Learning*

The table demonstrates the responses provided by pupils on the benefit that GBL provides for the improvement of the utilization of LCA.

Pupils Responses	Frequency	Per cent
Fun, expression abilities and confidence	35	24.3
Lesson interest and lessens absenteeism	39	27.1
Collaboration and long lasting memory	18	12.5
Creativity and critical thinking	26	18.1
Problem solving skills	16	11.1
None of the above	10	6.9
Total	**144**	**100**

Source: Field Data (2023)

Creativity

Table 1 indicates that 21(20%) teachers said that GBL contributes to provide creativity among pupils to enhance the implementation of LCA. 3(2.8%) teachers said nothing on the contribution of GBL in enhancing the implementation of LCA. Also, Table 2 indicates that 26(18.1%) pupils said that GBL promotes creativity to the learners while 10(6.9%) pupils elaborated nothing. The result implies that teachers and pupils in Kahama Municipal know the contribution that GBL has in the implementation of LCA. Due to promotion of creativity to learners, the implementation of LCA is promoted because it needs the learners to be the knowledge constructor hence the creativity skills that they gain from using GBL enables them to be able to construct knowledge by themselves.

The interview conducted with Ward Educational Officer, and Head of Schools also show that game-based learning enables the pupils to be creative as the WEO B said "Game-based learning enables the pupils to be creative so that they are able to live according to the environment". Another interviewee from School 3 elaborated that: "Learning using games strategy builds pupils' creativity skills". Likewise, the interviewee from School 6 stated, Game-based learning builds creativity ability to pupils because it enables them to use all sense organs".

The quotations above show that ward educational officers and head of schools in public primary schools in Kahama Municipal determine that GBL contributes to the development of creativity among pupils. Thus they have a responsibility to encourage teachers to use it in teaching and learning process. The result from this study corroborated with that of the study done by Mfeka and Thomas (2019) in South Africa and Lee and Choi (2020) in Tanzania as they found that GBL promotes learning achievement. This is due to the fact that creativity is the one of the learning achievement that the learners are expected to attain as per the 21st century skills needed to be gained by the learners. Game-based learning enables the instructors and learners to be creative according to the environment they live. Being creative helps the teacher to design games that are align with the subject's objectives. Also creativity enables technological advancement for the

development of learners in their future life as per the need of LCA. The creativity developed by the learners also helps learners to be able to construct knowledge by themselves as per the theory underpinned the study. The skills that GBL builds to the learners such as creativity made teachers worldwide to prefer using this strategy to integrate games and learning the content.

Problem-Solving Skill

Table 1 shows that 18(17%) teachers said that GBL promotes problem-solving skills unlike 3(2.8%) teachers amongst them did not say anything on the contribution of GBL in enhancing the implementation of LCA. In addition, Table 2 show that 16(11.1%) pupils elaborated that GBL enables pupils to develop problem-solving skill although 10(6.9%) pupils said nothing on the contribution of GBL. The data from the field through teachers' and pupils' questionnaires indicate that teachers and pupils are aware that GBL has the ability of promoting problem-solving skill. The ability of solving-problems that pupils gain through the use of GBL enables them to live in their environment according to the social, economic and technological changes. By doing so the GBL strategy enhances the implementation of LCA due to the fact that learners are developing the ability of being the societal members who are able to solve problems that arise in the society.

Concerning the respondents interviewed the findings show that GBL promotes the ability to solve problems. One of the heads of schools from School 5 stated that:

Learning through games enables the pupils to resolve the challenges that they encounter in the environment surrounding them. For example, "simba ni mkali" game (the lion is cruel animal game) used to teach the concept of security and safety in the family or community. This happening when they apply the knowledge in their real life. (Interviewee HoS, August 2023)

This quotation above implies that head teachers in public primary schools as the internal school supervisors understand the contributions that GBL provides in the implementation of LCA. The result from interview and questionnaire agreed with the study done in Zanzibar by Zaibon and Yunus (2021) who found that game-based learning promotes problem-solving skills among pupils. The result supported by the constructivism theory that provides the learner with problem-solving skills. Having problem-solving skills enables learners to construct knowledge by themselves to resolve the difficulties surrounding them. Thus teachers have to use game-based learning in their teaching and learning process as it is building into constructivism theory in a way that it enables learner-centred approach to be active because it also builds into the constructivism theory for the learners to construct knowledge by themselves. Following the benefits that GBL possess countries like Kenya used it to promote the implementation of competence-based curriculum (CBC).

Lesson Interest

The findings are shown clearly in Table 1 and 2 in which 30(29%) teachers described that GBL promotes lesson interest. However, 3(2.8%) teachers were not able to say something. In the other part, 39(27.1%) pupils said that GBL develops lesson interest among pupils while 10(6.9%) pupils did not describe something. According to the result it can be deduced that teachers and pupils in Kahama Municipal are aware of the teaching and learning strategy that develops lesson interest. This is due to the fact that children like playing games. Therefore, when they learn through games they like that lesson and build a learning habit.

Moreso, the results from the interview show that GBL has the ability to promote lesson interest as stated by the one of the interviewees from school 3 as "Teaching pupils using games makes them to like a certain subject and the teacher who teach because they like playing games. This makes them not to miss the class". Additionally, the participant from quality assurance office noted that "Game-based learning arouses pupils learning interest because it enables them to understand lesson easily and all pupils participate in the lesson regardless to their great number in the classroom". In addition, the ward educational officer from ward F narrated this:

Game-based learning enhances the implementation of learner-centred approach because it enables pupils to develop lesson interest. This is because games promote mental and physical health and develop the power of brain. By doing so the learner become physically and mentally fit to participate fully in the learning process. (Interviewee WEO, August 2023)

The quotations above stipulate that educational supervisors such as head of schools, ward educational officers and quality assurance officers in Kahama Municipal know the teaching and learning strategies that attract learners. Awareness on the best teaching and learning enables the supervisors to conduct instructional supervision effectively in the classrooms.

The findings in this sub-section supported with the result found by the study done in United States by White and McCoy (2019). Their study revealed that game-based learning improves attitude towards lesson among pupils and Math achievement improved. Following the findings, it can be deduced that GBL enhances the implementation of LCA because it enables the learners to build learning interest. The learning interest makes the learners to take part in the learning activities as per the LCA needs where a very learner construct knowledge by himself or herself. If the learner can develop lesson interest it means that he or she is able to engage fully in the lesson in a way that promote the implementation of learner-centred approach. Developing lesson interest also enables the instructor to cooperate with the learners because they work together and enjoy the lesson all. This result is in line with the theory underpinned the study since the theory also promotes lesson interest. Following the value that GBL possesses in learning process, countries in the world like China, Nigeria, Ghana, among others adopt the strategy and using it in the implementation of LCA.

Lessen Absenteeism

The findings show that 30(29%) teachers and 39(27.1%) pupils clarified that the application of game-based learning lessens absenteeism among pupils. Unlike 3(2.8%) teachers and 10(6.9%) pupils were not able to describe anything. These findings are clearly shown in Table 1 and 2. The findings imply that teachers and pupils in Kahama Municipal schools

know the teaching and learning strategies that attract pupils to attend school. Thus for the effective implementation of learner-centred approach in public primary schools' teachers are required to use the teaching and learning strategies that motivates pupils to like attending schools. Normally a child who likes school always like attending classes and participate in an active way in the lesson process. During the collection of qualitative data, an interviewee narrated that:

Using game-based learning makes pupils to like coming to school and engage in the classroom. This is because they like playing, so if the teacher teaches them through games they are being motivated to attend school and this reduce the absenteeism rate in schools. (Interviewee HoS, August 2023)

The quotation above denotes that educational supervisors in school level determine the teaching and learning techniques that attract pupils to like attending schools to achieve their goals. This finding concurs with that of Ghana done by Yeboah et al. (2023) who found that game-based learning reducing absenteeism by motivating pupils to go to school. This is due to the fact that pupils not only learn taught subjects but also learn other new skills such as social skills. Learning process is a social activity that enables a learner to interact with their peers. Therefore, teachers are needed to select teaching strategy that motivates pupils to learn certain subject so that to attain the intended objectives to enable them to live in this world of 21st century. GBL happened to be more used by instructors in other countries in Africa such as South Africa, Kenya and Botswana among others in the implementation of competence-based curriculum.

Collaboration

The participants who answered questionnaires (teachers and pupils) demonstrated that the application of game-based learning in teaching and learning process promotes collaboration among pupils in the classroom during instructions. This is seen in Table 1 and 2 where 18(17%) teachers and 18(12.5%) pupils said that GBL promote collaboration. Contrasting, 3(2.8%) teachers and 10(6.9%) said nothing. The data imply that teachers and pupils in public primary schools in Kahama Municipal understand the benefit of GBL in building collaboration among pupils themselves and between a teacher and pupils. Collaboration is promoted because in playing the game every pupil participates by having an activity to perform. In that time, they share ideas, one says or does that and the other. Also a teacher participates in playing a game with pupils. In the interview one of the WEOs had this to share to the researcher:

Because children like to play games often, if they have a teacher who teaches them using games, they enjoy that lesson. And that enjoyment they get from the particular game motivates them to participate in an active way during the game. Everyone wants to do something. The active participation enables them to develop collaboration among them. (Interviewee WEO, August 2023)

The above quotation entails that educational supervisors at ward level in Kahama Municipal are aware of the contribution that GBL plays in developing collaboration skill among the learners themselves and their instructors. The findings from data collected in this study aligns with the argument provided by Zeng et al. (2020) that game-based learning promotes collaboration skills among learners. The skill that developed by GBL helps pupils to share ideas when learning process is going on. The ones who do not know something learn from the others. This is also supported by Lev Vygotsky in their theory of constructivism which guided the study. The theory states that learning is done socially in a collaborative way through the concept of zone of proximal development and scaffolding (Brau, 2018; McLeod, 2019). Also the thought of Eng (2019) are in line with the study's findings that game-based learning engages students in activities during learning process. According to the findings, the researcher noted that to promote the collaboration skill to enhance the implementation of a learner-centred approach in public primary schools' teachers have to be encouraged to use game-based learning in teaching and learning process. Collaboration skill enables the learners to apply the concept of zone of proximal development in their learning process by sharing ideas they have on the subject matter. The one who do not know learns from the other who knows. The benefit of integrating games in learning pressed countries all over the world to use GBL in the teaching and learning process.

Critical Thinking Skill

Table 1 shows that 21(20%) teachers illustrated that GBL provides critical thinking among teachers and pupils unlike 3(2.8%) teachers illustrated nothing. Moreover, Table 2 indicates that 26(18.1%) pupils said that GBL develop critical thinking skill to pupils while 10(6.9%) among them were not able to say anything. The findings indicate that teachers and pupils determine the teaching and learning strategies that make them think critically when designing games, learning or making decision. This implies that the critical thinking ability that pupils acquired when using game-based learning enables them to be active during the lesson session and making proper decision when learning or anytime when they want to do anything. It also enables the teacher to think in advance when designing a game. Critical thinking enhances the implementation of learner-centred in a way that pupils engage in the construction of knowledge as per the learner-centred approach requires.

In line with the result from questionnaire the findings from the respondents involved in interview also provided the same findings. The interviewee from School 4 elaborated that:

Game-based learning strategy promotes the ability of critical thinking. This is happening to the learner because she or he uses his or her all sensing organs. Due to this they are able to balance the use of their organs so that being able to link the game with the ideas or knowledge they are intended to acquire. For example, "Nyamanyama" game. In this game the learner is expected to identify wild and domestic animals. (Interviewee HoS, August 2023)

The quotation above denotes that head of schools in Kahama Municipal schools determine that GBL is the basis for the development of critical thinking among pupils. This is in line with the argument provided by Matthew and Venture (2020) that game-based learning promotes critical thinking, creativity, collaboration and communication skills. The result

matches with the theory that guided this study which states that the ability of the learners to construct knowledge by tthemselves builds the critical thinking skills of the learner.

Due to this finding the researcher realized that using game-based learning in classroom instructions enhance the implementation of learner-centred approach in public primary schools. This is because when the learners think critically they are being logical in making decision especially in career choice and solving problems surrounding them. The skill also helps the learner to polish his or her creativity skill and stimulate curiosity to get a better result in what they do and lifelong learning. This enables them to be able to apply the knowledge they acquire from schools in their real life situation after schooling. The findings made the research to deduce that educational supervisors, teachers and pupils are aware with the contribution of game-based learning in the implementation of a learner-centred approach in schools. The advantage that possessed by GBL in the implementation of competence-based curriculum CBC pressed USA to use it to promote science, technology, engineering and Mathematics skills among learners (Hartt et al, 2020).

Expression Ability and Confidence

The study correspondingly found that game-based learning provides pupils with the ability of expression and confidence. This was approved after the analysis of data provided by the participants from the field by answering the questionnaire. The learner-centred approach needs learners to be active in the classroom, and being active is supported by having confidence and ability of expression among learners and their teachers. Consequently, game-based learning is the best technique to be used in the classroom instructions to enhance the implementation of a learner-centred approach. This result is obviously shown in Table 1and 2 in which 15(14.2%) teachers and 35(24.3%)pupils confirmed that GBL offers learners with the ability of expression and confidence. Although 10(6.9%) pupils and 3(2.85) teachers were not aware of the contributions that GBL provides in enhancing the implementation of LCA.

Also, the result from the interview discussion likewise show that game-based learning enables pupils to be confident as explained by the interviewee that:

The teaching and learning process that applies games builds confidence ability to the pupils. It enables them to share ideas they have in the classroom. And this is how learner-centred approach needs to be in the classrooms. The learners are needed to talk and do activities in the whole lesson more than their teachers. (Interviewee WEO, August 2023)

The quotation above implies that the understanding supervisors possess on the input of GBL in the operation of LCA is a helpful aspect in their daily responsibilities. This maybe for the reason that they are experienced teachers and have been attended teachers' professional development. This outcome is unlike other findings, but it can be the source of the results that had been established by other studies. For example, the study done by Aremu and Adebagbo (2022) in Nigeria, Ngorosho (2018) and Farhan (2017) in Tanzania who found that game-based learning improves students' learning performance. The result in this part aligns with the theory of constructivism that guided this study that its, practice results to the development of confidence in learners. The findings indicate that teachers and pupils are aware of what game-based learning promotes to the learners however, it is not used much in public primary schools due to some challenges that face its application.

Long Lasting Memory

The discoveries from the questionnaires demonstrate that game-based learning builds long lasting memory to the learners. This is evidently in Table 1 and 2 in which 18(17%) teachers and 18(12.5%) pupils demonstrated that game-based learning builds long lasting memory to the pupils. Disparate, 3(2.8%) teachers and 10(6.9%) pupils demonstrated nothing. The result denotes that teachers and pupils in Kahama Municipal primary schools are determining the teaching and learning technique that enables the learner to recall what they had learn. Hence teachers who are the implementers of the learner-centred approach are needed to make sure that they use teaching and learning techniques that enable learners to retain what they had learn. By doing so it helps them to use the knowledge in their daily life for sustainable development of their societies.

On the same regard, the interviewed respondents also provided the same result on this sub-theme. The interviewee had the following to elaborate:

When pupils use the learning strategy that granted the chance of active participation in the learning process they maintain the knowledge and skills they acquired. And this retained skills and knowledge help them to learn a new thing. Game-based learning is a teaching and learning strategy that enables the learners to retain what they had learn because it allows engagement. (Interviewee HoS, August 2023)

Also one of the quality assurance had the following to share:

Game-based learning helps pupils to learn by understanding and not by memorising concepts. The understanding of the concept makes them to keep the knowledge in their brain for the future use. But when they learn by using learning strategies that motivate learning by memorization, they lose the knowledge they acquire after a short period of time. And this make the learning not to occur. She continued said that knowing that somebody had learnt something and understand it, is the application of that knowledge gained. (Interviewee QAO, August 2023)

The quotations above indicating that educational supervisors such as quality assurance officers and head of schools in Kahama Municipal have an ability to identify teaching and learning strategies that when used pupils retain what they had learn. This helps the supervisors to provide proper instructions to teachers in the selection of teaching and learning strategies to be used in classroom instructions.

The findings from this study confirmed with Drew (2020) who argued that learners learn through experience. The prior experience enables them to acquire the new one. Likewise, Shah (2020) notes that the learner links the new ideas with the prior knowledge he or she has. The result confirmed by the theory that guided the study in a way that it states that the learner constructs the knowledge through the experience. The new knowledge is built upon the old. The previous

knowledge retained enables the learner to generate the new one. The theory contributes to the development of long lasting memory among learners. Resulting to this finding the researcher detected that game-based learning is an important instructional strategy to be used in the process of teaching and learning to enhance the implementation of a learner-centred approach in public schools. This is due to the fact that learners are required to apply the knowledge and skills in their life after schooling. Thus the retained knowledge and skills enable them to live well in the society because they will be able to accommodate any difficulty they face in their life. The supervisors of education have to supervise the techniques used by teachers to ensure the proper implementation of a learner-centred approach in public primary schools.

Fun

The findings from the questionnaires answered by teachers and pupils involved in this study exposed that using game-based learning provides fun during the instructional process. This is shown plainly in Table 1 and 2 where 15(14.2%) teachers and 35(24.3%) pupils described that GBL provides fun during lesson session. Dissimilar, 10(6.9%) pupils and 3(2.8%) teachers elaborated nothing. The findings imply that, pupils and teachers to enjoy the lesson and be involved in it respectively as required, there should be fun so that learners should be active during the process. This creates positive relationships among the participants that result to the enhancement of the implementation of a learner-centred approach. The approach needs a teacher to be the instructor and pupils to be active participants. Thus having fun makes learners and teachers not be bored in the lesson process instead it builds positive engagement as per the need of a learner-centred approach.

Similarly, for the respondents who participated in the study through interview, also the result showing that the strategy brings fun in the classroom during the lesson session. This is stated by the interviewee that:

Game-based learning strategy when used in the classroom instructions pupils and their teachers have fun, they enjoy the lesson. If they use other strategies that do not bring pleasure in the class, the pupils and their teacher become bored and this let the lesson objective not attained. Using game-based learning remove boredom in the classroom. (Interviewee WEO, August 2023)

The quotation above indicates that ward educational officers in Kahama Municipal know the contributions that GBL promotes for the effective implementation of LCA. This could be for the reason that they attended seminars on the proper implementation of LCA. The outcome in this sub-theme upheld with that of Avdiu (2019) who did a study in Austria and revealed that game-based learning brings fun to the learners. Also the result supported by the theory that guided the study. The theory also provides learners with fun when learning. The result denotes that for a learner and instructor to be excited with what they do and for them to take a fully participation of the better result intended they must have pleasure in that activity. The findings imply that educational games that are designed are fun and enjoyable during the lesson. This encourages learners to enjoy the lesson and build learning interest. Thus game-based learning has the ability to enhance the implementation of a learner-centred approach because it makes pupils to engage in the lesson process.

Conclusion and Recommendations

Grounded on the findings that were revealed by the study, the following conclusion was made: Based on the findings revealed from both qualitative and quantitative information, it is concluded that GBL contributes to the development of lesson interest, collaboration, critical thinking, expression ability and confidence in enhancing the implementation of LCA to develop 21st skills among pupils. Likewise, it develops creativity, problem-solving skills, long lasting memory, fun and lessen absenteeism. Thus if game-based learning strategy is used effectively it enhances the implementation of a learner-centred approach in public primary schools. Resulting to the contribution that the study exhibit on the use of GBL, the study recommends that the government through the Ministry of Education, Science and Technology should set short, medium and long-term plans to ensure that GBL is used effectively in schools. Moreover, built on the importance of professional development for the application of GBL, policy makers should design a time bound for primary school teachers to upgrade their education in their career after being employed for the effective usage of GBL in the classroom instructions. Furthermore, based on the findings the curriculum developers should directly document GBL in the curriculum to ease its spread among educational instructors and supervisors all over the country to be align with the rapid world changes.

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