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Experiences of Senior Secondary School siSwati Teachers on Use of Project-Based Learning

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Abstract

Purpose: The 21st century challenges make Project-Based Learning (PBL) "the" language teaching method that develops skills with learners. The study explored experiences of Eswatini senior secondary school siSwati teachers on use of PBL, a case study of schools in the Manzini region, Kwaluseni cluster. The objectives of the study were to; ascertain senior secondary school siSwati teachers' views on use of PBL and to determine senior secondary school siSwati teachers' views on the factors that allow for effective use of PBL.

Methodology: The study employed the qualitative design; a six (6) item online interview guide and a focus group discussion guide with four (4) items designed by the researcher were used for data collection. Purposive sampling was used to select five (5) schools and ten (10) teachers as participants from Manzini region, Kwaluseni. Data was analyzed using content analysis.

Findings: Teachers viewed use of PBL as practical; offering opportunity for use of ICT resources and parental/guardian involvement. Teachers' experiences were that availability of resources; parental support and teacher-knowledge on use of PBL were factors that allow for effective use of PBL.

Unique Contribution to Theory, Policy and Practice: The study concluded that PBL is not only a practical but a collaborative approach that engages the learner with human resources; the teacher and the parent and physical resources as well. The recommendations were; provision of resources; revival of teacher-learner-parent relationships and capacitation of teachers on use of PB to teach and assess.

Keywords: Project-Based Learning, The 5 C Skills



INTRODUCTION

Project-Based Learning (PBL) is defined as learning by, through or from experience; an instructional method in which learners apply the learned classroom principles and theories into real life situations and contexts (Dewey, 1938, 1938; Bell, 2010). Use of PBL get learners actively involved in their own learning, in problem-solving processes and during knowledge construction, learners relate not only with the school but the society and country at large. It fosters acquisition of knowledge and attainment of learning goals through participatory methodologies. Additionally, it enhances collaboration and cooperation and offer learners room for critical thinking and creativity (Bell, 2010; Guo et al., 2020). In this regard, the 21st century regards PBL as a teaching strategy that enhances learners' competency in the 5C skills. Teachers perceive use of PBL as challenging in that much time and resources are required to enable learners to collaborate with their peers and community (Levy & Dor, 2016; Teacher Magazine, 2019).

The major strength of PBL is that it improves learners' performance in all the three learning domains; cognitive, affective and behavioral (Bell, 2010; Ansarian & Mohammadi, 2018; Guo et al., 2020). In the teaching of the siSwati subject PBL makes learning holistic; empower learners with critical thinking, creativity, communication, collaboration and Information Communication Technologies (ICT) as new language skills. However, studies revealed that PBL becomes more effective when teachers have the pedagogical knowledge and understanding of assessment of PBL tasks. The learners too need to be matured enough to partake in PBL tasks (Levy & Dor, 2016; Teacher Magazine, 2019. This study sought to explore experiences of Eswatini senior secondary school siSwati teachers on use of PBL.

Background of the study

PBL long existed in education, it first gained prominence with vocational education; teachers used it to make abstract ideas more concrete especially with practical subjects like agriculture, wood work, technical drawing, home economics and etc., where learners were creating and doing projects (William et al., 1997; Thomas, 2000). PBL has gradually revolved over time as student-led learning that involves real world contexts and is taking over other teaching strategies. Though founded by John Dewey and Heard Kilpatrick in the 20nth century, it has since gained much attention in the 21st century as a key teaching strategy (William et al., 1997; Bell, 2010). The major philosophy for teaching and learning in the 21st century is application of what has been learnt to new situations, environments and experiences (Pan et al., 2021). PBL became a necessity in that critics of the 20nth century define the 21st century as an era of vast information and technologies that requires new literacies beyond the 3Rs of reading, writing and arithmetic (National Education Association (NEA), 2010). These new literacies are summed up by different scholars as the 4C skills; communication, collaboration, critical thinking and creativity (Partnership for 21st Century Skills (PTCS), 2006; NEA, 2010; Bell, 2010). The researcher in this study adds Information Communication Technology (ICT) as the fifth skill, thus view them



as the 5C skills. In this regard, the 5C skills referred to in the study are; communication, collaboration, critical thinking, creativity and ICT.

Project-based learning in the teaching of language

Emerging trends in language teaching has made the PBL an innovative approach for language learning in that use of the popular Communicative Language Teaching (CLT) approach does not transform learners into the desired goals of education and language learning in the 21st century (Ansarian & Mohammadi, 2018). Learning, adaptation and application of concepts are key in language learning in the 21st century. The CLT is therefore criticized for depriving learners' opportunity for practice, autonomy and involvement (Ansarian & Mohammadi, 2018). Contrary PBL deals with education in reality, offer learners opportunity to manage their own language learning in practical situations. The learning of the siSwati language through PBL becomes autonomous in that the teacher assume the role of a tutor who guides the learners' acquisition of content alongside development of necessary skills, values, attitudes and ethics.

Therefore, PBL is perceived as a conventional language teaching strategy that goes beyond making learners competent with the four language skills of reading, writing, speaking and listening siSwati but further enhance development of other skills, most importantly, the 5Cs. The same thing applies to the siSwati literature and culture, PBL helps learners not only identify the history, culture and literary devices employed and the storyline but acquire skills through analysis and evaluation of values and ethics depicted in the story. PBL also helps the learners relate the values to their own.

Thus, besides construction of useful knowledge and engaging learners in practical use of the siSwati language, PBL is an integrated approach that helps learners acquire skills, knowledge, values and ethics simultaneously. Additionally, it offers learners opportunity for creative use of emerging and innovative technologies which has become a predisposition of 21st century learning. Finally, it improves learners' communicative, creative and critical thinking abilities (Bell, 2010).

PBL comes in three different forms; as challenged-based, activity-based and place-based. In challenged-based project learning teachers use the multidisciplinary approach and engage learners on creative use of ICT. Learners can write or design literary works. During activity-based project learning, teachers assign learners tasks that offer opportunity to experiment. They can dramatize or enact the content. In place-based project learning, learners learn through engaging in projects and activities outside the four walls of the school. It can be landscapes, heritages, culture places, rivers etc. (Heick & Teach Thought Staff, 2021). PBL learning activities used in schools include hands-on-activities, field trips, laboratory investigations, and use of multidisciplinary themes for the content (Thomas, 2000). Three types of tasks are assigned learners; individual, group and ICT –related tasks that are a combination of lower (LOT) and



higher order thinking skills with emphasis on higher order thinking skills. This study explored experiences of Eswatini senior secondary school siSwati teachers' use of PBL.

Problem statement

PBL is lifted by the Eswatini senior secondary school curriculum as a major teaching strategy that makes learning a creative process; one that do not only help learners acquire knowledge and language skills but apply them in real life situations(International General Certificate of Secondary Education (IGCSE) Consultative Document, 2005). Much research on PBL have been done in the Kingdom of Eswatini, amongst studies reviewed none was on teachers' experiences. This study explored experiences of Eswatini senior secondary school siSwati teachers on use of PBL.

Theoretical framework

The study is framed alongside Social Constructivism by Vygotsky (1978). The major tenet of social constructivism is that learning takes place through the learners' interaction with both internal and external structures referred to as mediating agents and More Knowledgeable Others (MKO) in the child's surrounding environment. It therefore postulates that teachers consider the society as another environment to be used to help learners demonstrate skills and knowledge learnt from class.

Proponents of social constructivism are Bruner and Piaget who founded cognitive development. They view that learners' mental capabilities are developed through reflection and experience (Akpan et al., 2020). The theory thus, postulates that the process of learning must help learners not only acquire but use and perform the learned knowledge and skills in real life situations at school, society and the country large. To be able to do this, the theory states that during the process of learning, learners must be given opportunity to construct the knowledge and skills on their own while the teacher as a guider or supporter of development of higher order thinking skills (Guo et al., 2020; Pan et al., 2021). This support must be minimal and be removed to allow learners to mature up.

The theory is relevant to the study in that PBL is a practical teaching method in which learners are assigned tasks to work on their own either as groups or individuals inside and outside class. During PBL, learners get opportunity to use their existing knowledge and skills, which becomes a reflective experience.

LITERATURE REVIEW

Different scholars recognize the value and significance of PBL as a strategy for integrating the 5C skills (NEA, 2010, p 30; Harshberger, 2016; Priyatni & As'ari, 2019). Bell (2010) cites that PBL is a strategy that enhances learners deeply with the content through development of Higher Order Thinking skills (HOT). Bell further make emphases to the fact that these skills are not developed in isolation but through practice; therefore, PBL is a discovery learning approach that



engages the learners' use of human and physical resources thus, broadening their scope of understanding.

Use of PBL enhances learners' curiosity and motivation to learn in that they explore experience, investigate, reflect, and relate (Bell, 2010). It is thus, a highly engaging approach in that learners do not only construct knowledge on their own but also build up on their existing KSAVE. PBL ensure that cognitive growth is developed alongside the other learning domains; affective and psychomotor. Consequently, Thomas (2000) describes PBL as one that fosters meaningful and authentic learning; increased retention of concepts and acquisition of the 5C skills. Dewey (1938) describes it as enriched learning by doing that enhances continuity of the existing learners' experiences.

All the views maintain the initial idea behind PBL, which is the progressive nature of learning which view that education, must provide learners with experiences that enhance and sustain their growth (Dewey as cited in William et al., 1997). This implies that the teachers quit traditional methods and adopt authentic learning that is hands-on and practical.

Challenges of using PBL

The challenges of using PBL are based on its characteristics; that of embedding all learning domains, linking subject matter with reality, being performed in and outside the school environment and embedding use of ICT.

Embedding all learning domains

Use of the PBL embed all learning domains concurrently, thus require teachers to deal with so many variables during the teaching and learning process, they are to battle with content, skills, attitudes, values and ethics simultaneously. Ansarian and Mohammadi (2018) complained that inception of PBL in language is a challenge in that teachers focus on both language learning and language as a tool. This overburdens the teacher who is much concerned with the content that is examinable (Conley & the Educational Policy Improvement Center, 2007).

Linking subject matter with reality

Secondly, PBL links subject matter content with reality which is not easy because it requires teachers to unlearn traditional classroom behavior and engages HOT skills. Schleicher (2012) advises that teachers therefore, need to guide learners towards use of HOT skills; on how to read instructions, acquire, apply, evaluate and analyse knowledge. This seems to be a daunting task with the teacher who also needs guidance. Research conducted by Saleh (2019) reveals that the challenge of teaching 21st century skills is that teachers lack clear guidance. Additionally, teachers need to have the time to attend to each learner which is an exercise that is determined by class-size and understanding of clear roles for the teacher and the learner (Pan et al., 2021). Therefore, effective use of PBL requires that the allowed teacher – learner ratio (TLR) be adhered to.



Parental supervision

Thirdly, PBL is both in-school and out-of-school learning therefore, engages the parent or the guardian and the society as well. Cacciamani et al. (2018) studied how participation can be enhanced in community and online learning in university courses in Britain, suggested that use of a social tutor can promote learning and further increase students' participation. To concur with the idea Mkhonta (2021) claimed that while the school has operated as the center of care and support for children for so long, 21st century teaching takes it back home. Therefore, Mkhonta suggested that such transition require that parents or guardians transform their parenting styles into ones befitting the role of a social tutor.

Innovative use of ICT

Lastly, PBL tasks embed use of ICT as means of making abstract ideas more meaningful thus, requires availability of siSwati learning material online. The problem with this demand is that siSwati is still not used as a language of ICT (Mkhonta & Nxumalo, 2021). A study by UNESCO (2016) found that when learning material is not enough teachers and learners get demotivated. In this regard, Mkhonta & Nxumalo recommended the need to have siSwati material online.

Empirical studies

Amongst literature reviewed, Chen and Yang (2019) compared the effects of PBL and teachers' use of direct instruction on students' academic performance in all levels; primary, secondary and tertiary. With all the levels, the findings revealed that PBL produces better educational outcomes compared to direct instruction. Guo et al. (2020) reviewed student's outcomes in PBL in higher education. Findings revealed that it improves students' academic performance greatly.

Motsa, et al. (2019) studied the factors that determine the choice of instructional strategies in teaching the siSwati language in primary schools of Eswatini. The findings revealed that teachers tend to use those strategies in which the learner's responses are high and those that make learners perform well regardless of whether they are traditional. Mkhonta (2021) reviewed psychosocial support issues; new parenting demands during the COVID – 19 era and suggested that parents should shift their parenting approaches into ones that train learners digital group growth, improvisation and self-management skills. This study explored experiences of Eswatini senior secondary school siSwati teachers on use of PBL.

METHODOLOGY

The study was qualitative and interpretative in nature; a case study of five (5) schools. Case studies are context bound, they have specific context for easy definition of the unit of analysis (Miles & Huberman, 2014). Therefore, the units of analysis for this study were senior secondary school siSwati teachers in Kwaluseni cluster, Manzini region of the Kingdom of Eswatini. Case studies are most convenient in that they allow the researcher to collect comprehensive data within the confines of time and space (Yin, 2018). Purposive sampling was used to select schools

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that are geographically closer to the researcher for convenience sake. Additionally, case studies can be conducted through both offline and online data collection methods (Yin, 2018; Turner, 2019); the researcher in this study blended online focus group discussions and semi- structured one-on-one online interviews as data collection instruments. Data was analyzed using thematic content analysis. From the five (5) schools, two (2) teachers of siSwati at senior secondary school were randomly selected in each school and used for the online focus group discussions making a total of ten (10) participants. To get evidence and more insight of teachers' experiences on use of PBL, stratified random sampling was used to identify teachers with rich knowledge on use of PBL from the focus group as potential participants for the one-one-semi-structured online interviews. Finally, the one-on-one semi-structured online interviews were conducted with one (1) teacher per school making a total of five (5) for the whole study, using WhatsApp chats and calls. Yin (2018) advises that case studies are critical in that they require high quality analysis. Therefore, besides recording the interviews, a research journal was used to record the participants' descriptions and the researchers' interpretations of teacher's experiences on use of PBL.

FINDINGS

Data obtained from the study were presented in the form of themes and presented as direct quotations and interpretations.

Research question 1: What are senior secondary school siSwati teachers' views on use of Project -based learning?

Teachers responded to this question through online focus group discussions and semi-structured interviews. Table 1 below, are themes that emerged from the teachers' responses.

Table 1: Views of senior secondary school siSwati teachers on use of PBL

PBL as practical learning

PBL as demanding high responsibility with both the learner and parent/guardian

PBL as offering opportunity for use of ICT

PBL as requiring additional resources

Theme 1: PBL as practical learning

Teachers explained that; "PBL make our children practicalize the content learnt in siSwati to real life situations, this is helpful in that even the parents and the community lend a hand during the learning process. I feel it brings back education to its original, giving skills to be used in the society" Another teacher from the group mentioned that use of PBL allow learners to be hands-on even during class time. "There are classroom activities that I use to engage my learners like



debates, class presentations, dramatization and role play. During these activities learners are able to practicalize the information and in the process they learn to be critical thinkers and team workers".

Teachers lamented that before the COVID-19 outbreak they would normally visit places in the likes of; Umsamo WeSive, umuti wesiSwati, mantenga falls, etc. When asked about how they ensured learning during such educational visits, few of the teachers confessed to give learners assessment tasks to measure learners' achievement of content on the targeted topics. "We take them to cultural village in order to reduce culture topics to be taught in class"." Ngibaniketa ema past papers lanalemibuto letabasita" meaning "I give them questions from past examination papers". However, teachers explained that such PBL tasks have been effective in that learners would perform better in the culture component during the examination.

Theme 2: PBL as demanding high responsibility with both the learner and parent or guardian

Teachers narrated that PBL is in-school and out-of-school learning therefore, beyond payment of school fees parents need to guide learning. A teacher commented that; "*The learners who are not followed into by parents do not submit work given. I easily tell when a parent does not check even the learners' progress*". According to one teachers' view "learners from private schools are able to do research, submit work in time and go an extra mile to seek for more work".

However, teachers from the group observed that some of these learners tend to give-up or lose interest when they see that the other learners do not bother. Another teacher made a comment on academic performance "*Mancane ematfuba ekutsi umntfwana longanaki ente kahle nawusebentisa i- PBL*" meaning that '*aberrant learners hardly perform well in PBL*".

One teacher went further on to confess that; "During the first lock down sabalandzelela sadzinwa sagcina siyekele sonkhe kubafakela umsebenti. Let us adopt the private school mentality yekutsi Umtali asayine ku both in-school and out-of-school task". This teacher meant that during lock down they tried to make a follow-up behind learners' work in vain.

To elaborate a teacher explained that PBL require that parents or guardians take the lead in learners' learning especially during COVID-19 blended learning era. As emphasizes on parental responsibility a teacher from the group shared that "*Private schools engage the parent or guardian in this type of learning such that not only the learner is taken to task for failing to do school work but the parent also receives a call blaming him or her for behaving irresponsibly.*"

Theme 3: PBL as offering opportunity for use of ICT resources

Teachers explained that; "Whether the PBL tasks is done at school or in the community, this days it somehow engages use of ICT resources". One teacher complained that "I normally assign them to do research on topics under culture and literature and learners get excited just that they bring different information especially with topics on culture". Teachers who echoed this one



complained that there is no information on culture online therefore, learners rely on the community and their parents who hold not the original information on the Emaswati culture because they live in peri-urban settings.

Theme 4: PBL as demanding additional resources

Teachers viewed that PBL require use of many other resources for effective learning. They said; "As long as we have no siSwati language laboratories, siSwati will never be practical in the true sense". Teachers gave examples of English language which already have got laboratories and equipment in most schools. A teacher who explained the inconvenience caused by limited resources said; "Sometimes I plan to use learner-centered activities but end up falling for a teacher-led class discussion because it does not demand many resources".

Research question 2: What are senior secondary school siSwati teachers' views on the factors that determine use of Project -based learning?

Data for this question was gathered through the online focus group discussions and semi structured interviews. Table 2 below is a display of the themes that emerged from the data.

Table 2: Views of senior secondary school siSwati teachers on the factors that determine use of PBL

Theme	Subtheme
Factors associated with the school	 Provision of resources Administrating at-home time tables Class size
Factors associated with the learner	• Responsible use of ICT gadgets
Factors associated with the parent	 Provision of learning support Follow-up on/monitoring learning Availing learning time at home Provision of ICT resources



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Factors associated with the teacher	 Expertise in designing PBL learning tasks Expertise in guiding learners towards HOT tasks Alignment between continuous and final the assessment
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School factor

Teachers mentioned that effective use of PBL require that the school improves infrastructure. One of the teachers reported that; "PBL makes learning practical and get learners deeply engaged with the content of the siSwati subject above the four language skills of reading, writing, speaking and listening to improving their learning and innovation skills thus many resources are needed".

Teachers also complained that learners do many of the tasks at home therefore, at-home time tables are required "*My learners complain that all teachers give them work to do at home such that they end up choosing to do subjects they enjoy most and ignore others of less interest*". Another teacher said; "*It is not about class-size whether it is written, research and doing tasks the level of submission of school work is very unsatisfactory, I observed that during the blended learning era*". A teacher from the group clarified that worse is that when learners come to school on the next day, there is mad rush for content coverage "*Ungagcina ungakafundzisi utekana nemacala kani nalama periods mancane asancishiswa*" meaning "*Making a follow-up of learners*" work consume precious teaching and learning class time, PBL is good for self-disciplined learners".

Parental factor

According to the teachers' views PBL comes with an extra responsibility with the parent whom besides providing financial support is required to monitor, evaluate and make means for learning to occur. A teacher narrated; "I pity parents because PBL require that they fully support their children. Worse is that they are the ones to avail time for doing PBL tasks and give resources required, make a follow-up of the learners' doing of the tasks, the list is endless".

Teachers from the group said; "Today some project tasks require of ICT resources, which is a problem because most of our learners share the gadgets with their parents". Another teacher explained that as a result learners use that as a scape goat "Each time I demand work, the learners would complain that they share cellphones with their parents, they wait until they are home which sometimes becomes too late for them". These teachers viewed that PBL require that parents provide learners with ICT gadgets.

Teacher factor

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Teachers also, explained that PBL require that they give learners HOT which is time consuming and require that they themselves too clearly understand the learning goals, outcomes and assessment. Teachers said they are thus required to have the knowledge to design PBL tasks; understand the tasks words to use and further guide learners towards attending HOT thinking tasks. "PBL is a special kind of instruction that needs me to understand the siSwati curriculum, interpret and simplify instruction to make sense given the time frame and the learners' experiences. It becomes too difficult because in PBL learners expect me to explain or simplify the tasks for them".

Teachers also complained that PBL is non-examinable, "I teach both English and siSwati but I use PBL tasks easier with English because I know that even during the examination my learners will be awarded marks for speaking, listening, reading and writing, with siSwati PBL are a waste of time and resources". They felt that PBL can be more valid if the assessment for siSwati could have at least one practical assessment as this could motivate them.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Discussion

Findings revealed that teachers viewed PBL as practical and learner-centred. They confessed that they take learners to places with cultural artifacts like Mantenga Cultural Village, Umsamo (the National Archives) etc as place-based PBL. They said these field trips were effective such that they would not even make a follow-up on the content learnt but learners pass the section on culture. These findings prove (Ansarian and Mohammadi, 2018; Gou et al., 2020) true that besides active participation PBL improves learners' performance in all the learning domains; cognitive, affective and psychomotor.

Teachers' experiences were that the challenge with using individual research project tasks was that the peri-urban context of their schools compromise factual information especially with culture topics in that learners come back with modified versions of the content. To remedy the situation, Mkhonta and Nxumalo (2021) cited the agent need to infuse siSwati into ICT platforms. Teachers also mentioned learners' lack of commitment to do and submit individual PBL work. Teachers therefore viewed that these tasks require responsibility with both the learner and the parent or guardian. The findings were aligned to suggestions by Mkhonta (2021) that the innovations in teaching methods require that parents become social tutors.

Effective use of PBL requires that the school improves available resources; administrators facilitate learning schedules to operate during and outside school hours. Limited resources makes activity-based/experimental tasks like debates, discussions, dramatizations and role play to be used by teachers minimally though most learners get interested with them. This is contrary to Motsa et al. (2019) who found that teachers used strategies in which learners' responses are high. Teachers felt that use of PBL is costly in that it requires provision of teaching material and resources like language laboratories, enough texts books and ICT facilities, while schools do not

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have . The teachers' observations were similar to NEA (2010) who mentioned that PBL develop new literacies therefore need extra resources which most schools do not afford. Teachers explained that they find themselves using teacher –led class discussion which becomes direct instruction because as much as it discouraged for being teacher-centered it demands less equipment.

The teachers' concern on time factor was similar to the view by Ansarian and Mohammadi (2018) that teaching language is a problem on its own considering that it is a vehicle for transmission of culture. The situation is worse with the siSwati subject as teachers are to teach language, literature and culture and further give attention to development of skills concurrently. Conley and the Educational Improvement Center (2007) comment that when teachers are overburdened they normally choose to focus on the content as it is examinable.

The findings also revealed that parental support is needed in PBL. They said that much burden lies with the parent or guardian whom PBL assign a new role of being the manager for the learning process. The findings concur with Cacciamani et al. (2018) who view that PBL happens within and out of school therefore, engage the parent as well. Teachers complained that lack of parental support is a challenge in use of PBL in that it leads to reduced learner participation. Cacciamani et al. (2018) suggested the need for a social tutor whom Mkhonta (2021) view that it is supposed to be the parent or guardian. Learners with background use of PBL were reported to be highly cooperative with PBL tasks. However, teachers reported that most learners complained that parents/guardians do not afford them time to engage on their projects, worse parents are those who share learning gadgets with their children.

The findings also revealed that effective use of PBL tasks also calls for further development with teachers' professional expertise. Beyond being subject matter experts, teachers need to have the skills of assessment of which the starting point is a clear understanding of learning outcomes and designing of instruction that will ensure that learners acquire not only content but skills. The findings concur with Schleicher (2012) who mentioned that teachers should guide learners' use of PBL tasks because of their demand for increased retention of concepts or deeper engagement with content. Teachers explained that this was what makes use of PBL to be time consuming, and compel them to assign learners tasks to do at home. On the other hand, they complained that PBL tasks are HOT, are therefore effective with tasks assigned to be done in class as individuals not at-home which is contrary to Vygotsky (1978) idea of teachers being scaffolds that offer minimal help and remove it.

Conclusion

Conclusions drawn from the study were that teachers' viewed use of PBL as an approach that greatly improve the teaching and learning of siSwati in that besides being practical, it offers opportunity for use of ICT as a major teaching resource and further takes back learning to being a collaborative effort between the teacher, learner and parent or guardian. Consequently,



provision of resources and infrastructure; parental/guardians' involvement in the learning process and teacher knowledge on use of PBL are factors that allow for effective use of PBL.

Recommendations

The study recommended that effective use of PBL require that; the learner, the teacher, the parent or guardian and ICT resources become interactive agents with the sole purpose of supporting learning. Schools are to provide additional resources, revive teacher-learner-parent relationships and capacitate teachers on use of PBL to teach and assess learners.

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