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## EFFECTIVENESS OF GAME BASED LEARNING FOR TEACHING VENECLAR LANGUAGE FOR A1 SCHOOLS

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### Abstract

This study looks at the effectiveness of game based learning in teaching students at early childhood in primary schools in Zimbabwe. The game aided in teaching basic Shona (vernacular language) from grade 1 Shona syllabus linked to English to teach grade 2 students. These grade 2 students were purposively selected because they are still at early childhood stage and they have already done basic computing and reading lessons. Convenience sampling was used to select Mutusva primary school. Students were grouped into two one was for the game based learning and the other was for the conventional method. Results showed that students subjected to game based learning performed better than the other groups and as part of recommendation schools were urged to embrace game learning in their syllabus.

**Keywords:** Game based learning, post-test, pre-test, convenience sampling

### INTRODUCTION

Infants have a great passion in playing games and as such they could spent almost the whole day playing games. With the advent of computers coupled by modern day technology computer games are now easily accessible to anyone with a computer gadget. Computer games have grown in popularity since the mid-1980s, when computers and gaming consoles were first introduced (Young et al., 2012). Game-based learning' broadly refers to the use of video games to support teaching and

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learning (Perrotta, Featherstone, Aston, & Houghton, 2013). The number of children and adolescents spending time with games has increased by 25 percent, (J Kang, 2013). Young children today are part of the 'net generation' or the so-called 'digital natives' of the digital age (Oblinger, Oblinger, & Lippincott, 2005)(Prensky, 2001). They 'require multiple streams of information, prefer inductive reasoning, want frequent and quick interactions with content and have exceptional visual literacy skills', (Eck, 2006)- aspects that are well supported by game-based learning approaches. The main purpose of this research is to channel their interests of playing games to learning so that their performance in schools will improve. This can be substantiated basing from the key principles of game based learning (Perrotta et al., 2013) that:

- 1) Intrinsic motivation: Playing is by and large voluntary and self-driven
- 2) Learning through intense joyment and fun
- 3) Authenticity: contextualized, goal oriented instead of learning by abstract
- 4) Self-reliance and autonomy: passion and interest that lead to a will to specialize
- 5) Experimental learning: Learning by doing

What it implies is that young children will spend much of their times learning using computer games. According to (Liu et al., 1912) Computer games are an exceptionally popular medium across all age groups and have significantly impacted on the way that younger people and children spend their leisure time. According to Papert, S as cited by (Rupere & Munyaradzi, 2013), the reason most kids do not like school is not that the work is too hard, but that it is utterly boring. With the growth in the availability and functionality of digital devices, GBL has become a popular instruction method, however while this type of instruction method is being used in different sectors, there are many different aspects in terms of content and delivery between the games and Primary educational requirements. According to e-learning Africa newspaper report (Icwe, 2013), transformation of curriculum to start teaching and assessing 21st century skills through Myth ware classroom management system, the other three subjects done at primary level have been implemented successfully in some schools leaving the researcher with questions that how then are they going to completely digitize the whole education system while they have neglected the other subject that is Shona? Since Zimbabwe is trying to engage with the fast paced growth in technology across sub-Saharan Africa as well as using innovation through a movement towards game based learning and trying to move towards the 21st century challenge, the research is aimed at finding out if games can be effective in teaching and learning of native languages using ShonaApp, a prototype of a game which consist translation of English words to Shona words using text, pictures and voice pronunciation of the Shona words to students at early childhood. The game also consist of some quiz after the completion of the learning process which tests if the student has a know-how of what has been learnt. The researcher has decided to use Shona since the other subjects have been successfully implemented through e-learning. Muzurura et al recommends the design and implementation of similar integrated GBL projects that covers various aspects of student learning and integrate with the student background. The GBL must be structured in how pupils learn and attention must to be rendered to the pedagogical skills embedded in the GBL tool.

## **METHODS**

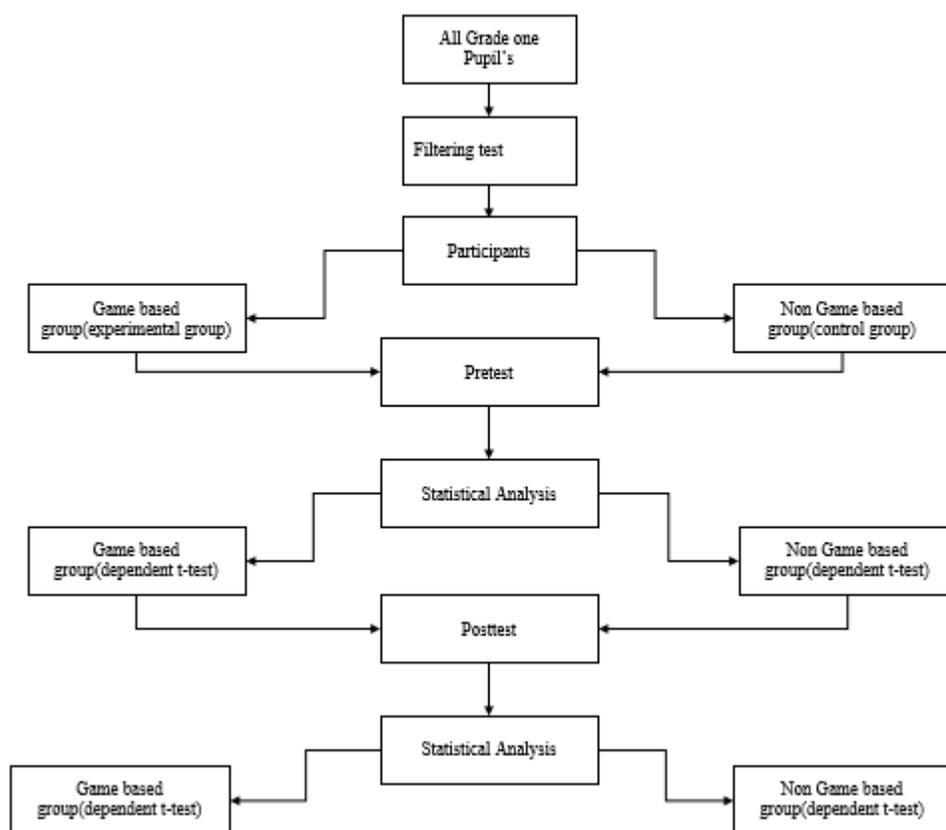
In this study, a comparative experimental design was used to compare the effectiveness of game based learning using custom-made Shona application against the traditional way of teaching Shona. Effectiveness was then determined by considering content mastery and change in pass rate. In the process of selecting a school the researcher adopted the convenience sampling technique because that is the school where the researcher did the teaching practice. Hence a school named Mutusva

primary was chosen. Mutusva primary school is housed in Masvingo province in the Masvingo District region. The school has 4 grade two classes, with each class comprising of about 40 pupils

CLASS	NUMBER OF STUDENTS
Grade one A	39
Grade one B	42
Grade one C	41
Grade one D	38

Table 1: number of students in each class

The study population comprised of all the grade two pupils because all of them do Shona as a subject In this case there were a total of 160 students. Ideally the first thing is to extract a set of students who performs the same. This was be done by giving all students a filtering test and basing on the marks they got students who got similar marks were selected.



**Figure 1 The study design used in the study**

A filtering test was given on the 20<sup>th</sup> of January 2016. The researcher took 2 days to mark the scripts. From the results there were 60 students whose marks were in the range of 70 to 75. The general assumption was that these student’s performance is almost the same because of the closeness of their marks. Students were then grouped into two sets one for the game based learning and the other for the conventional method. For assessing performance before the experiment a pre-test was given on the 25<sup>th</sup> of January 2016 to assess their performance. These two learning methods were run in parallel for 2 months. The game based learning group was administered by the researcher the other

non-game based group was administered by another Shona teacher. Lastly a post-test was given on the 1<sup>st</sup> of April 2016 to assess the most learning method.

The tests were then marked by the researchers and scores recorded for analysis. The assessment tests were suitable because of the following advantages: use of both pre-test and post-test enabled the measurement of the effectiveness of the two different types of learning methods, thereby ensuring internal validity of the experiment results.

## STATISTICAL ANALYSIS

Specifically for this study, normality tests were done to test whether the data followed a normal distribution. The determination of the normality was done in order to use the specific test statistic. In this regard, the *Shapiro-Wilk* test was used to test whether the data followed a normal distribution. Data was indicated to be normally distributed if the p-value was less than 0.05. Both pre and post-test data was normally distributed as Shapiro-Wilk  $W=.95108$ ,  $p=0.001$ . Therefore t-test was used to determine differences in mean marks between the two groups.

## RESULTS

### Pre-test

Before determining the effects of the game based learning between the experimental and the control group, there was need to compare the effects of the game based learning (GBL) within the groups. Accordingly, an independent samples t-test was performed on the control and experimental groups using the pre-test marks as the dependent variables. Results indicated that there were no significant differences ( $p=0.122$ ) in the mean test scores between those taught using GBL and conventional methods. Therefore it can be inferred that the performance of the students was the same before the use of GBL (Figure 2).

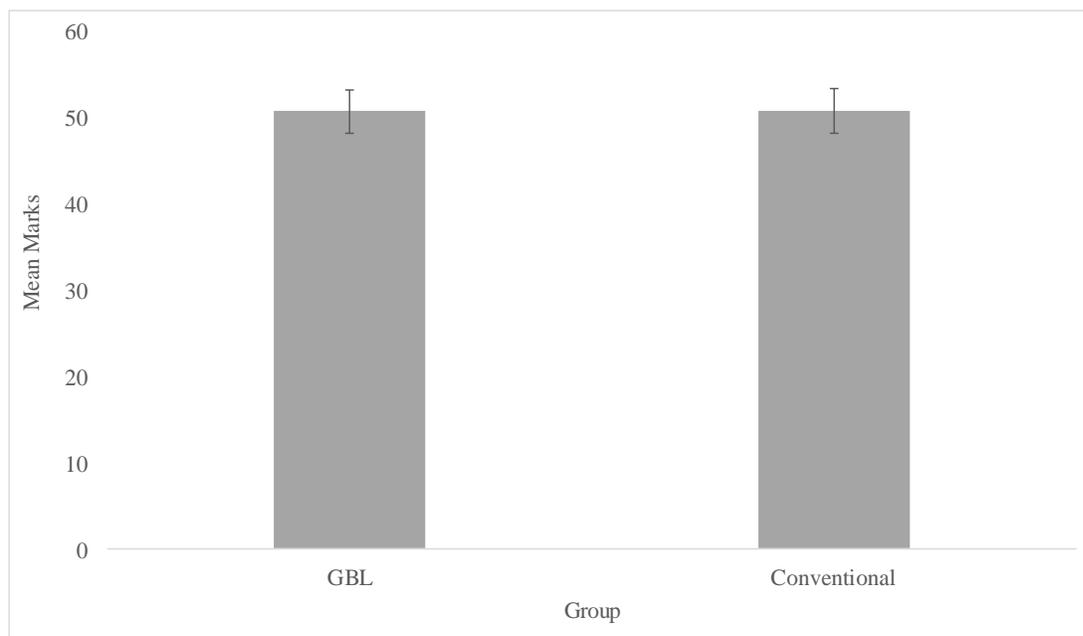
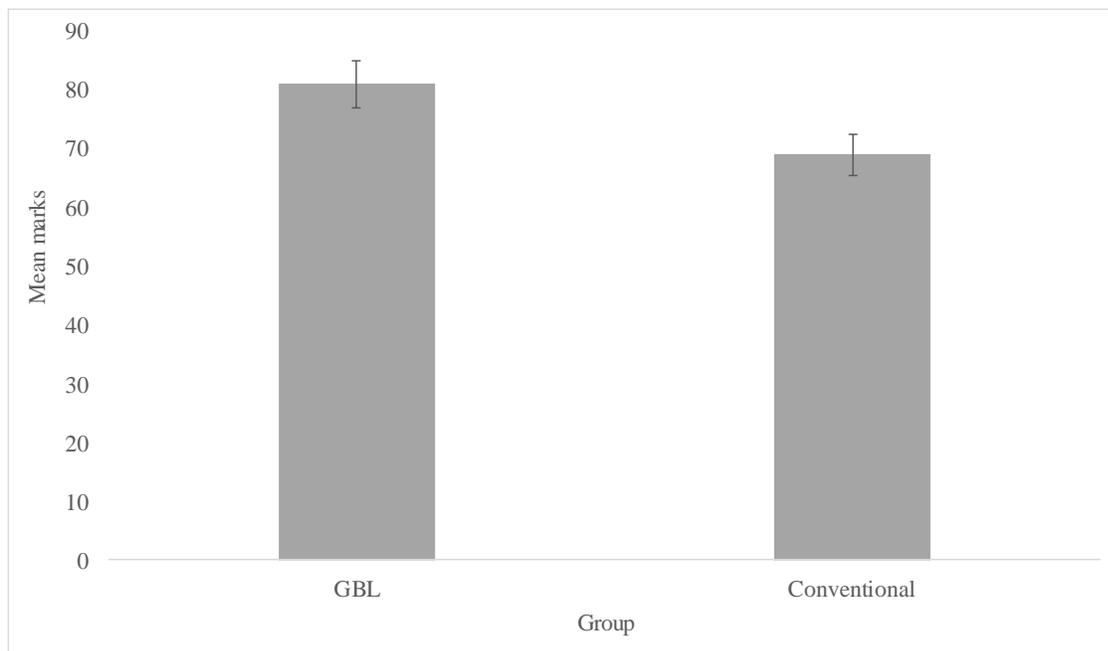


Figure 2 Pre-test mean marks between groups

### Post test

The findings for this study indicated that the students who used GBL got an average mark of 81% whilst the students taught using the conventional method got an average mark of 61% (Figure 3). Thus testing at 5% level of significance, the results indicated that there were significant differences between the GBL and conventional groups ( $p = 0.000$ ). Thus from the mean marks indicated in Figure 2 it can be observed that there was a change in the mean marks scored by the students who used GBL. Therefore it can be concluded that the use of GBL had a positive effect on the performance of the students.



**Figure 3 Post-test mean marks between groups**

### CONCLUSION

Based on the research findings it can be concluded that the use of vernacular game based learning with more academic content works and assists students in learning since they will be eager to score higher on the game. Students seem to be highly motivated in scoring or even maximising the game scores thereby learning how to safely accomplish their work. However the researcher can conclude that the best way to make students enjoy the learning process, feel comfortable with learning, be motivated, actively think and practice their lessons learned to develop consistent and productive thought processes, is by using GBL which has more academic content than entertainment. It can be recommended that game based learning must be adopted in all schools since it has proved to be effective in teaching students than the conventional method.

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