

USING GEOENZO SOFTWARE IN GEOMETRY TO TEACH PRIMARY SCHOOL TEACHER (PST) STUDENTS

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ABSTRACT

The use of appropriate learning aids makes it easier for students to understand the material. There are various kinds of learning software used to build space, however, Geoenzo makes it easier for students to understand the material, become confident as individuals and capable of sharing their knowledge in their class.

Keywords: Mathematics Learning, Geoenzo, Primary School Teacher Students

INTRODUCTION

According to Robert S. Zais, the Curriculum and Learning modules of an educational institution is based on five foundations, namely (1) *philosophical assumptions*, (2) *epistemology (the nature of the nature of knowledge)*, (3) *society/culture*, (4) *the individual* and (5) *learning theory*. Creative learning activities effectively increase students' knowledge (Khuziakhmetov & Gorev, 2017). Furthermore, Kuboja and Ngussa, stated that there are four essential foundations in developing a curriculum, namely the philosophical, psychological, socio-cultural, and the development of science/technology (Kuboja & Ngussa, 2015). Philosophical foundation becomes the main foundation compared to other aspects, with different views resulting in varying curriculum development applications. The philosophical foundation produces national education, institutional, field, and instructional goals. While psychological foundation is related to learning theory and developmental psychology, which is used to determine the contents of the curriculum presented to students to ensure the level of breadth and depth is in accordance with their development. The curriculum need to be able to meet the needs of every student (Ornstein, 1990), and changes need to consider various mathematical aspects and education systems (Robitaille & Dirks, 1982). It is a strategic and crucial aspect of education due to its ability to lead learners to live in the future.

USE OF LEARNING MEDIA

Three things needs to be considered in the use of tools in form of software to achieve learning needs, namely in what context is the software used to ensure students learn, and to ease their accessibility ability (Brown, 1990). Visual appearance significantly increases students understanding (Clements, 1982), with computers used to make the learning atmosphere in the classroom conducive, thereby, increasing students enthusiasm to learn (Kumar & Kumaresan, nd). The use of ICT in learning mathematics, tends to improve students' mathematical literacy abilities (Rahmawati, 2018)

GeoEnzo is a free math application created to quickly draw geometrical shapes such as cones, triangles, circles, cubes, lines. It is a useful tool that allows students to turn the screen into a standard blackboard, thereby, displaying its ability. Besides being able to draw freely on the board, one of the most exciting features of this program is its ability to create all kinds of simple geometric shapes. The use of GeoEnzo in geometry lessons with contextual models significantly increases student understanding (Mauladaniyati & Kurniawan, 2018). Furthermore, its use in elementary schools such as in learning mathematics, is a right step in technology introduction. In building space, many graphic presentations are needed to explain the material, therefore, the use of media is very appropriate to facilitate teaching.

There are Cabri (Figure 1), Wingeom (Figure 2), GeoEnzo (Figure 3), Geogebra (Figure 4) follows.

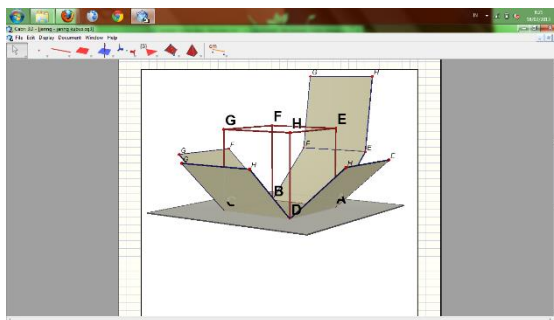


Figure 1

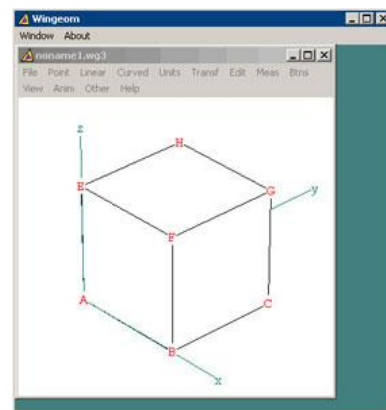


Figure. 2

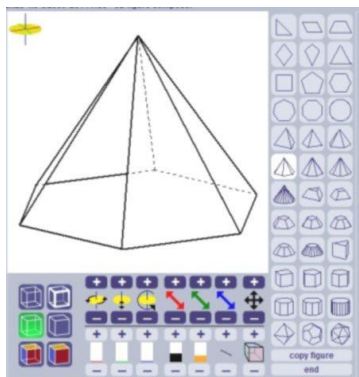


Figure. 3

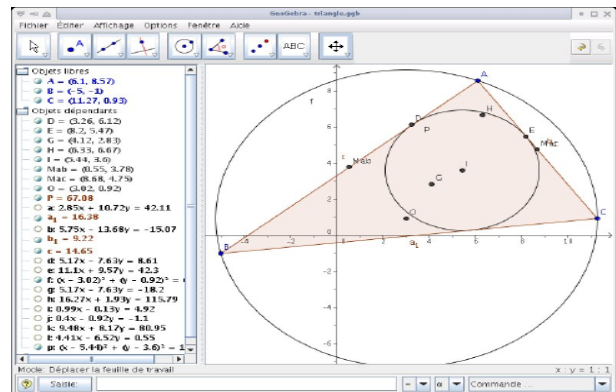


Figure. 4

In addition, there are others software capable of displaying three-dimensional geometric images. However, the selection of GeoEnzo software in mathematics learning courses in elementary schools is due to its effortless usage compared to other software, such as cabri, geogebra, or wingeom. The uses of these softwares makes students depressed and think of ways to utilize it rather than paying attention in

class. Also based on the results of interviews with students, they do not want to use the software because it is complicated.

RESEARCH METHODS

Research conducted on students of the Teacher Education study program during the seventh-semester, with two classes sampled in the pretest-posttest group design is as follows:

Experimental Class: **AO X1 O**
AO X2 O

Specification:

A = Samples randomly selected according to class

O = Initial test and final test

X1 = Learning with *geoenzo*

X2 = Learning with *geogebra*

Data used in the study were obtained from the results of the pretest-posttest, interviews, and observations during the learning process. Similarly, data obtained from the results of the initial and final test were analyzed by descriptive analysis.

DISCUSSION

Primary school teacher study programme comprises of teachers with at least two (2) years teaching experience. The purpose of establishing this programme is to improve teacher competencies and make them professional. Students that work daily as educators or teachers are trained to improve their various teaching abilities using this software.

Based on the detailed test results, classes which utilized the *geoenzo* software performed better , as shown in the following Figure 5.

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean
PRE	25	.00	20.00	230.00	9.2000
POST	25	60.00	100.00	1980.00	79.2000
PRE1	25	.00	20.00	320.00	12.8000
POST1	25	40.00	60.00	1320.00	52.8000
Valid N (listwise)	25				

Figure 5: Descriptive Test Results

In Figure 5, the pre and posttest results in class A which uses *geoenzo* with a mean of 79.2 was higher than class B which does not use the software with a 52.8 mean. However, both classes have

increased learning outcomes using the learning media, with a better improvement in class A. Mauladaniyati & Kurniawan (2018) stated that the use of this software increases understanding.

The results of interviews with all students proved that those with the use of geoenzo, felt happy, and confident of their knowledge, while others failed to understand, were not satisfied and the class was not conducive (crowded).

Students need to always prepare to learn something new to be able to adapt in the future. The instructor needs to analyze their characters, prepare and motivate them to keep learning with perseverance.

CONCLUSION

The use of GeoEnzo in learning geometry is essential in improving students' understanding ability. Furthermore, it makes the classroom conducive, increases students ability to pay attention, their enthusiasm and confidence. There are many free software on the internet used to learn mathematics, however, it is necessary to study their usefulness in order to attract students.

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