

EFFICACY OF GRAPHIC ORGANIZER ON PRIMARY SCHOOL STUDENTS' PERFORMANCE IN COGNITIVE WRITING SKILLS

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Abstract

This study investigated the efficacy of graphic organizer on junior secondary school students' cognitive writing development skills. The study also determined the influence of school type and gender on the performance of students taught with graphic organizer (GO). The study was necessitated because of the problem of non-readable hand-writings of the pupils in junior secondary schools. The quasi-experimental design which involved the pre-test, post-test, control group design was employed for the study. The research sample was drawn from two randomly selected junior secondary schools from Ile-Ife, Oyo State, Nigeria. Students from the sampled class were further stratified along gender. The instruments used for collecting data were Graphic Organizer Achievement Test (GOAT) and the graphic organizer (GO). Graphic Organizer Achievement Test (GOAT) was pilot tested for reliability using the test-retest method of three weeks interval and Pearson Moment Product Correlation coefficient analysis revealed a reliability coefficient value of .78. The two hypotheses were tested using t-test. Findings indicated that, students taught with the graphic organizer performed better than those taught with conventional method. It was shown that the gender of pupils was not a factor in the performance of students when they were taught with Graphic Organizer. Based on the findings, it was recommended that teachers should use Graphic Organizer in teaching Cultural and Creative Arts to enhance students' performance.

Keywords: Graphic Organizers, Cognitive Writing Development, Public and Private Primary Schools, Gender, Cultural and Creative Arts.

INTRODUCTION

Learning is a shift from one behavioral act to another through experience, this is achieved when relative and useful information is delivered in a systematic way to learners' cognitive sense in an organized, meaningful and useable format (McElroy & Coughlin, 2009). Reading children start with the reciting and identification of the twenty six letters of alphabets, this further leads to construction of words in different disciplines. An alphabet is the foundation on which Graphics Arts is built, and a very prominent aspect in visual arts. Graphics is an aspect of Creative Arts taught in the primary schools within the context of Cultural and Creative Arts (Usman, Odewumi, Obotuke, Apolola, & Ogunyinka, 2014). Graphics utilizes alphabets and visual or images to communicate idea and concept, it is conspicuously seen everywhere because the captions facilitate e-learning enhancement through sense of sight (Miller, 2011). Therefore, it is pertinent for learners to be tailored towards learning with the world of graphics and especially letterings and visuals from early stage.

In another word, graphics is a designing of alphabetic concepts. It belongs to non-verbal instructional media through which learners acquire crucial information and concepts (Githua & Nyabwa 2008). Along with this statement, Zaini, Mokhtar and Nawawi (2010) explained graphic organizers as a fraction of instructional media which emerge to substituting words articulated in linear form into visual structural updates of a designed content for easy assimilation by the learners.

Katayama and Crooks (2003) explained that graphic organizer is relative perfect in describing changes that carried out within the scope of visual in educating young one within the education process and method. It is a showcase of different visual affairs of learning content of concepts and ideas. It also a guardian to learner's thinking and reasoning which is established on a stronger visual map or diagram.

Although, Hall and Strongman (2008) submitted that graphic organizers is said to be a unique package, instant solution provider to learning difficult topics easily. Graphic organizer is unique tool of representation, illustration and modeling of information in visuals or graphics form in instructions. In essence, graphic organizer take proper care of students to identify the missing information or absent connections in one's strategic thinking (Ellis, 2004). Student embarking on graphic organizers as learning tool also assists them to see related facts in learning. Studies has confirmed that graphic organizer is mostly available for giving knowledge to learners, elicits progressive instruction and fun, rather than involving them in the traditional learning mode.

Researches confirmed effectiveness of graphic organizer in some disciplines such as Home Economics (Alshatti, 2012), Sciences (Kristina & Condidorio, 2010), Science and Technology (Ayuerdi, Nakiboslu, Ozayin, 2014), Mathematics (Mercer & Miller, 2003; Githua & Nyabwa (2007), Writing (Sundeen, 2007; Jasmine & Weiner 2007.), Health Education (Kools, Van de Wiel, Ruiter, Cruts, & Kok, 2006), and Social studies and special candidatures (Cleveland, 2005). Furthermore, students with learning disabilities also benefited from graphic organizer (Dexter & Hughes, 2011). In addition, Lovitt (1994) attested to the relevance of graphic organizers in organizing and highlight the essential content information on Vocabulary and Writing (Karsbaek, 2011). Meanwhile, most if these studies suggested that learners should be given the privilege to develop individual creativity to the optimum possible, for the benefit of their future and communities.

In this regards Burke (2007) submitted that creativity is bringing new and imaginative ideas into reality through the involvement of learners in critical thinking. Grosvenor (2007) explained that creativity shows case in the personal exhibition of creative imaginative behaviors and innate ability to produce something out of anything. Thus, creativity by learners is determined by their level of exposure to instructions.

Obviously, every learner begins to acquire basic learning skills from early age through day to day interactions with elders and their mates, storytelling, singing, pointing to and mention the names of objects and scribbling (Bohrer, 2005; Daimant-Cohen, 2007). Writing is imperative in child learning developmental process that further articulate knowledge, for feelings efficiently in the skill. Legibility of handwriting of learners is correlated with literacy skills and writing composition. Whereas cursive handwriting belongs to a skill and road map, through which the learners' thoughts and actions can be tailored right from birth through life education.

At this juncture, the educational establishment should be seen to plays a role model in writing, through training of instructors by the experts or competence hand (Hunt & O'Donnell, 1970; Cahill, 2009; Graham, 1999; Tompkins, 2004). Writing is acquire through constant repetition, moreover, the more the students form the habit of learning the more the writing skills is perfected and expressions are fluent and efficiently. The learners regular connection with their instructor coagulate and give way for the developing of the cognitive skills which in turn inspire the legibility process and ideas of the learners (Richards, 1990; Cresewell, 2008).

Learners' writing can be improved through constant repetition and copy of graphical works and pictographic wordings this in turn assists in instruction strategies. Classics, originality and imagination are

recognized with higher valued through creative writing, these further assist in given space to fabricate words content in unique to the beginners (Oberman & Kapka, 2001; Brookes & Marshall, 2004; Mak, & Coniam, 2008).

Instructor should inculcates avenue for the learners to become individual through writing habit formation on regular practices this will promotes, constant reading and elicit creative writing exercises. In line with this, Smith, (2000) further presented five writing stages as prewriting, drafting, revising, editing and publishing. Nevertheless, Oberman and Kapka, (2001) stressed that the constant visitation of writings by the learners fosters legibility, improves writing skills, and helps attaining good writing process in learners. Writing is a skills and also a talents which is of paramount to learners life education, because it helps learners to articulate their belief, facts and view efficiently, this can be monitored from the cradle till the end (Smith, 2000; Zampardo, 2008; Tompkins, 2004).

Like the architect of creative writing, graphics are also seen and prominent everywhere. It is the illustrator and representative of information, data or knowledge intended to present vital information to targeted audience. It is further classified as a storytelling which people use to visualize and illustrates knowledge, experiences, in logically manner. Whereas, graphics is an extremely effective and powerful means of communication over traditional means (Fernando, 2012; Myers, 2013; Gallicano, Ekachai & Freberg, 2014). It is also the way visual information which is built on data or knowledge that intended to present crucial and complex information very urgent and clearly, it also combines beautiful visuals along with rich text to delivers clear messages of effective communication anywhere and anytime (Doug, 2004; Bostock, 2010).

The basic form of Creative Art is the ability to appreciate the beauty and quality of the nature within the environment and to skillfully restructure the natural environment by transforming the visual objects and materials into objects of greater value (Kalilu, 2013). Nevertheless, objects, materials and visuals are of paramount trend in educative instructional packages. These have contributed a great development in bringing strong impact to learners' educational needs, characteristics and pedagogy in implementing instructional procedure. Graphic elicit positive response mostly among the pupils in legible letterings, clear visual and the bright colors involves (Sewidan & Al-Jazar, 2007).

Recently, Nigerian students' handwritings were not legible and their style of writing was not encouraging. Legible writings foster permanent learning which graphic organizer promotes. The knowledge of good lettering is essential for reading and writing; construction of wordings and books. To promote effective graphics, there are several studies on graphics organizer and education globally. For instance, Stephanie Miller (2011) examined the impact of graphic organizers on pre-writing tool to increase students' writing proficiency, the study projected graphic organizers as a media of improving the students' legibility.

In another development, Meera and Aiswary (2014) explored the efficacy of graphic organizers in writing among the secondary schools; the results confirmed the graphic organizers as a great developer of the English writing skills among the learner. Josiah and Adaramati (2015) submitted that teacher efficiency is measured by the outcome of his students' performances therefore, researchers suggested the learner-centered approach with appropriate interactive technology devices for impacting knowledge to the young ones.

Generally, studies established the positive influence of graphic organizers on the comprehension and reading of learners with disabilities. Kim, Vaughan, Wanzek, and Wei (2004) submitted that judicious use of graphic organizers in teaching process influence students' reading problem among the disable students.

Also, Kools, van de Wiel, Ruiter, Cruts, and Kok (2006) reported that the use of text in health education increased reading comprehension. Chohan (2011) reacted to negative that poor handling of writing skill will have on the future generation of learners' developmental stage. However, the extent to which the motivational graphic organizer package in teaching of creative writing can enhance instructional delivery among the junior secondary students in Nigeria is still unknown.

Therefore, the study sought to determine the influence of motivation on graphic organizer instruction in teaching creative writing among the junior secondary students in Ile-Ife, Osun State, Nigeria. The study further determined the influence of gender on the performances of students taught with graphic organizer.

Research Hypotheses

The following two hypotheses were formulated and tested at .05 level of significance:

1. There is no significant difference in the mean performance score of students in public and private primary school students taught using graphic organizer.
2. There is no significant difference in the mean performance score of male and female primary school students taught with graphic organizer.

Methodology

This study was a quasi-experimental type of post-test, control group design. The target population for this study was basic five (primary 5) creative arts students in Ile-Ife, Nigeria. Purposive sampling technique was used for selecting two junior secondary schools based on the following criteria: Year of Enrolment (Primary school offering creative arts for the past five years); Facilities (Creative Arts Studio); Manpower (Experienced creative arts teacher); and Electricity (Uninterrupted Power Supply).

The instruments for this research were the treatment instrument "Graphic Organizer (GO)", the marking guide and the test instrument, "Graphic Organizer Achievement Test (GOAT)". The Graphic Organizer, was built on the ideology of Instructional Design. However, Babalola (2007) explained that the Instructional Design (ID) is an organized procedure for producing educative, training and instructional programme.

Morrison, Ross, and Kemp instructional design model was adopted for this study. It has nine stages ranges from identifying instruction design problems to evaluation the instrument. Graphic Organizer was a self-instructional, interactive package stored in a Compact Disk (CD) and projected using multimedia projector. The package contained the operating buttons such as: Stop, Play, Next, Pause, and Previous to provide easier control of the package. The package was used for six weeks.

It contained six topics which include: Element of Design, Family of Alphabets, Gothic Letterings, Lower Case, and Upper Case Letterings. The validation and evaluation of the package was done by Fine and Applied Arts experts, Educational Technology and Computer Science specialists. They conducted face and content validity of the package by scrutinizing the: visual appearance, operating system, tenses, readability, and clarity of the package.

Graphics Organiser Achievement Test (GOAT) was pilot tested on some selected sample that shared the same characteristics with the final sample used for this study and it was found positive. GOAT contained 50-item multiple choice objective questions with five options (A - E) drawn from the collection of past question papers of Common Entrance into Secondary School.

Experimental Procedure

The objectives and modalities of the experiments were well specified and operational manual guide were adequately provided for the teachers and students. The students were exposed to graphic organizer instruction. The graphic organizer instructional package was projected via projection screen for the experimental groups. The students were instructed to be mindful and take notices of instruction provided on the graphic organizer package. The treatment for the group lasted for six weeks. After six week treatment, GOAT was administered as posttest.

Results

H0₁: There is no significant difference in the mean performance score of students in public and private junior secondary school students taught using graphic organizer.

This hypothesis was tested using t-test statistic to compare the mean scores of public and private junior secondary school students' taught with graphic organizer. The result is shown in Table 1.

Table 1: t-test comparisons of the mean scores of public and private junior secondary school students taught using graphic organizer

Variables	N	Mean	SD	df	t-value	p-value
Public Junior secondary School	30	4.00	12.10	58	.781	.381
Private Junior secondary School	30	15.10	2.50			

Table 1 presents the t-test comparison of the mean scores of public and private junior secondary school students taught using graphic organizer. The mean scores for the public secondary school were 4.00 with standard deviation of 12.10. The mean scores for the private secondary school were 15.10 with standard deviation of 2.50. The t-value of .781 was not significant at the .381 alpha value ($t = .781$, $df = 58$, $p > 0.05$). This indicates that there was no significant difference between the public and private junior secondary schools taught using graphic organizer. Hence, hypothesis one was not rejected.

H0₂: There is no significant difference in the mean performance score of male and female junior secondary school students taught with graphic organizer.

This hypothesis was tested using the t-test statistic to compare the mean scores of male and female junior secondary school students taught with graphic organizer. The result is shown in Table 2.

Table 2 presents the t-test comparison of the mean scores of male and female junior secondary school students taught using graphic organizer. The mean scores for the male junior secondary students were 15.10 with standard deviation of 2.45.

Table 2: t-test comparisons of the mean scores of male and female junior secondary school students taught using graphic organizer

Variables	N	Mean	SD	df	t-value	p-value
Male Students	31	15.10	2.45	58	.385	.537
Female Students	29	14.00	2.09			

The mean scores for the female junior secondary school students were 14.00 with standard deviation of 2.09. The t-value of .385 was not significant at the .537 alpha value ($t = .385$, $df = 58$, $p > 0.05$). This indicates that there was no significant difference between the male and female junior secondary school students taught using graphic organizer. Hence, hypothesis two was not rejected.

Discussion of findings

The findings revealed that there was no significant difference between the public and private junior secondary school students taught with graphic organizer. Similarly, there was no significant difference between the performance of male and female students taught with graphic organizer. This finding is in line with that of Levasseur and Sawyer (2006), Jones (2009), Michelle (2013) and Nsofor and Momoh (2013), Alabi, Emmanuel and Falode (2015) that students attention are more captured through slides, projected visual image, motion pictures and developed electronic instructions irrespective of gender. The finding agrees with the findings of Clark (2007) which revealed that graphic organizers helps students to understand difficult concepts generate thoughts, and ideas.

The finding is also in congruence with that of Karsbaek (2011) who reported that graphic organizers enhance students understanding during their early scribbling, inscription and life-long writings. However, the finding disagreed with that of Egan (1999) and Baxendell (2003) who stated that graphic organizers will cause students to become confused and disorganized in their understanding. It also agreed with that of Robinson and Molina (2002) who stated that, students who studied graphic organizers performed worse on the visual task and auditory task.

Conclusion

The graphic organizer enhanced the performance of public and private junior secondary school students' taught with graphic organizers in creative writing. Similarly, male and female junior secondary school students taught graphic organizer in creative arts performed equally better. This implies that, graphic organizer is gender friendly. This study proved that teaching students with technological tools like graphic organizer improved students' performance in creative arts irrespective of school type and gender.

The implication is that graphic organizer (GO) offers an individual technology-based pedagogical strategy to learner, which provides an efficient and effective teaching that facilitate the learning acquisition skill in various cognitive aspect of knowledge. Creative writing can be better taught and learned through the utilization of the graphic organizer within the Nigerian junior secondary primary school context.

Recommendations

The following recommendations were proffered based on the findings:

1. Secondary school teachers should be encouraged and trained to use Graphic organizers in teaching Creative Arts. Instructional process and activities should be designed to accommodate the use of Graphic organizers in the classrooms. Also, teachers should be able to integrate Graphic organizers into their lesson.
2. Government should create more awareness through seminar and workshop on the use of Graphic organizers in schools. There should also be a production unit in the Ministry of Education or Educational Resources Centre across the country where Graphic Organizers would be produced.

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