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## Effect of Concept Mapping Method on Students' Achievements in CRK in Junior Secondary Schools In Ebonyi Local Government Area in Ebonyi State

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### **Abstract**

The study is designed to ascertain effect of concept mapping method on the students' mean achievements in CRK in Junior Secondary School in Ebonyi State. Three research questions guided the study. It is a quasi-experimental research design in which data were gathered from two schools in Ebonyi local government area of Ebonyi State. Two intact classes of JSS II were randomly selected for control and the treatment. The instrument for data collection was the 25 items CRS achievement test (CRSAT) and was used for both pre-test and post-test (though the questions were reshuffled). Mean and standard deviation were used to answer the research question. The result showed that concept mapping teaching method enhanced students' achievement in CRS than the conventional methods. Based on the findings some recommendations were made and conclusion drawn.

**Keywords:** Effect, Concept Mapping Method, Achievement, Christian Religious Knowledge

### **Introduction**

Christian Religious studies (CRS) is one of the core subjects in junior secondary schools. The teaching of Christian religious studies (CRS) could be dated back to 19<sup>th</sup> century AD with the pioneers of Nigerian education (Agha, 1999). In secondary and primary schools CRS had been assigned different names over the years. Akubue (1992) observed that during the missionary era the subject was known as Bible knowledge, with government take over of schools, the name was changed to Christian religious knowledge and presently the subject is known as Christian religious studies (CRS).

CRS is a study that deals with religious principles, practices and values which are transmitted from generation to generation. Ilori (1992) observed that religious studies is an academic discipline that upholds highest level of ethical and moral standards, encourage development of conscience and consideration for other people, thus, appropriate methods needs to be adopted so as to enhance students' performance and internalization of ethical and moral values.

Concept mapping as a teaching method is a graphical tool for organizing and representing knowledge. It is a technique used in visualizing set of relationships that exist among different concepts. A concept map is a diagram in which each node contains an idea; concepts or questions which are linked together by branches to show their relationship to each other (Novak, 2006). A concept map does not always have to take the form of a web; they can be presented as a tree diagram, an organizational chart or mind mapping.

Concept mapping could be viewed according to Canas, Hoffman and Novak (2003) as a development to enhance meaningful learning in the Science and Arts. Canas et al further described concept map as a sort of map, a system or set of concepts. During the missionary administration of schools CRS was given a priority in the school curriculum because of its

moral values. Following the government take-over of schools, Nigerian Secondary School Curriculum was reviewed and more emphasis placed on science and technological subjects. This shift affected the study of CRK in schools (Anyanwu, 1998). Gbenda (2004) highlighted poor teaching aids and teaching methods adopted by non professional teachers as major causes of poor achievement in the subject. Obayi (2000) noted that for effective teaching and learning to take place there must be qualified teachers who are ready to employ appropriate methods in their teaching. This is why Novak & Canas (2006) observed that CRK teachers need to encourage their students by adopting more versatile methods like concept mapping among others while teaching.

A study conducted by the institute for the advancement of research in education, examined 29 scientifically based studies on the use of concept mapping in schools and found that the method can lead to improved performance in many arts and science based subjects. No wonder Novak (2006) postulated that meaningful learning involves the assimilation of new concepts and propositions existing in the cognitive structure.

Studies by Anyanwu 1998 and Obilom 2005 revealed that methods adopted by teachers in junior secondary schools like inquiry/discovery, field trip, discussions, questioning and lecture methods are teacher-centred. Some of these methods are complementary to others because no method stands alone (Duru, 2005). Irrespective of this combination of methods in teaching CRS by teachers, most students perform poorly in junior WAEC (WAEC 2010). The poor performance in CRS has been attributed to the teachers' failure to teach well. Furthermore, the dearth of teachers of CRK compels school management to assign the subject to any teacher that can read and interpret bible. These alien teachers are not abreast with CRK concepts hence they find it difficult to transfer knowledge meaningfully to the learner. For instance Obilom (1995) accused the teachers and their methods of teaching, while Gbenda (2004) laid blame on poor provision of instructional aids.

Concept mapping was developed by Joseph Novak and backed up with Ausubel's assimilation theory that stressed the importance of prior knowledge as a factor in learning new concepts. Concept mapping derived its hierarchical structure from Ausubel's assimilation theory of learning. Ausubel's theory of learning is however, concerned with developing a model of meaningful verbal reception learning and related methods which facilitate classroom learning. Ausubel proscribes three Phase of learning. The phase include: the teacher stating the aim of the lesson, presenting the organizer and relating the organizer to students knowledge; then make the organization of the new materials explicit, logically place them in order, present materials and engage students in meaningful learning activities; and lastly relate new information to advance organizer and encourage active reception learning. Through this process new knowledge is acquired or assimilated in hierarchy by anchoring to already existing concepts. The theory postulated that knowledge is a symbolic mental construct in the learner's mind and that learning occurs through symbolic representations of ideas which are committed to memory. This means that a meaningful learning can only occur if the learner consciously relates new knowledge to relevant concepts they know before.

In the words of Schunk (2004) assimilation theory is a process where new information is related to an existing relevant aspect of the individual's knowledge structure. This aspect of Ausubel's theory fits with the concepts of short and long term memory in cognitive information processing. The theory meanwhile integrates the cognitive, affective and psychomotor domains. Ausubel identifies two aspects of learning: rote learning and meaningful meaning. Rote learning has implications for recall and transferability of what is learnt; while meaningful learning refers to learning that is well anchored and integrated which occurs when learner can find meaning in the information presented. Ausubel emphasized that when learning occurs it produces a series of changes in the individual's

cognitive structure as well as modifying the existing concepts and forming new linkages between concepts (Lancraftt, 2008). For instance in the teaching of some of the CRS concepts like love, kindness and so on, previous knowledge are required for easy assimilation. Meaningful learning therefore is personal, idiosyncratic and involves recognition of the links among concepts. This however, suggests why concept mapping is powerful and good for teaching especially where learning through conventional methods is easily forgotten.

In the words of Lancraftt (2008), concept maps are not only useful in representing changes in the knowledge structure of learners for a period of time but also help them to “learn how to learn”. Ausubel’s assimilation theory recognized that the classroom represents people from different cultures and belief with different experiences; therefore the way they perceive, interact with and respond to learning situations are different. Some look at whole picture at first and isolate it into smaller parts while some start by examining the relationship between the parts before looking at the whole picture. Teachers however, do not take cognizance of all these differences; and this may frustrate many students and as such reduce their achievements rate.

It is deduced that concept maps have the characteristics of accommodating difficult learning styles as such bring about effective teaching and learning. No wonder, Novak (2003) described concept mapping as a heuristic tool for helping students organize their cognitive framework into more powerful integrated patterns capable of improving students’ achievements in science. This however motivated the researcher to investigate on the effect of concept mapping teaching method on the mean achievement of students in CRS lessons. This created the gap which the current study seeks to bridge.

### **Statement of the Problem**

Several studies have been conducted on the effective strategies for teaching of CRS. Ugwu & Nwoye (2006) observed that most teachers of CRS concentrate on discussion method of teaching. Discussion method according to Ugwu and Nwoye allows the learner to view issues from the teachers’ perspective, but noted that the major constraints of this method is the tendency of teacher dominating the lesson or impose his ideas on the learner. Moreover methods like lecture and simulation do not encourage conceptualization and quick recall of learned experiences. Looking at the above scenario, the researcher seek to investigate the effect of concept mapping teaching method on the mean achievement of CRS students in the junior secondary schools in Ebonyi local government.

### **Research Question**

1. What is the effect of concept mapping method on the students’ mean achievements in CRK in Junior Secondary School?

### **Methodology**

The study employed a quasi-experimental research design. The population of the study comprises all the eight (8) government owned secondary schools in the area with total population of 8534 pupils as documented as at June 2014 by SEB Ebonyi state. The researcher adopted cluster sampling technique in which four secondary schools were selected out of the eight secondary schools in the area. Each of the class has 35 students approximately. Four intact classes of JSS 11 streams were randomly selected; from the four schools: two classes were used for control and the other two for treatment. The instrument for data collection was the 25 item CRS achievement Test (CRSAT) developed by the researcher. The instrument was designed in multiple choice test formats with three options. CRSAT was used for both pre-test and post-test though the questions were reshuffled and presented in a different page

The treatment and control groups were taught the same lessons on CRS based on the third term scheme of work in 2011/2012 academic session. These groups were exposed to the same classroom environment and on the same topics expect that the methods of teaching were different (concept mapping for the treatment group while conventional methods were used for the control group). Both students however were examined on the same questions and at the same time. Data was collected through results of pre-test and post-test of CRS students' achievement test of both groups. Mean and standard deviation were used to answer the research question.

### Data Presentation

**Table 1:** *Mean and standard deviation of CRS Achievement test scores of students taught using concept mapping and those taught with conventional methods.*

Groups	Mean	Standard Deviation
Treatment group (taught using concept mapping)	56.1	11.11
Control group (taught using conventional method)	42.5	13.04

The result showed that concept mapping method yielded a mean achievement score of 56.1 with a standard deviation of 11.11 while the conventional methods groups yielded a mean achievement score of 42.5 with the standard deviation of 13.4, and this means that the achievement score of the treatment group is higher than the control group.

### Discussion

Concept mapping teaching method enhanced students' achievements in CRS than the conventional methods. The study revealed that concept mapping help students to learn what needs review and as well provide a means for detecting students' misconceptions and lack of knowledge of prerequisite concepts necessary for learning new things. The result agrees with Igwe (2006) that concept mapping is a useful tool for formative assessment because it can provide an added assistance to the learner in terms of organizing the knowledge in a way that facilitates retention and recovery of learned concepts. Likewise, Sowa (1983) observed that concept mapping increases meaningful learning, communicate complex ideas, enhances meta-cognition and represents the training context and its relationship with other pervious knowledge. The finding is quite interesting and understandable because when a teacher employs concept teaching method while teaching he drops a wholistic idea of the topic in the memory of the learner. When a learner remembers one of the concepts it will help him to recall the chain. Summarily concept mapping teaching method gives a learner a summary of the content of the study for instant topics like twelve tribes of Israel, monarchy in Israel and so on could be learnt by building a tree-like shape that represent the major concepts.

### Recommendations

- Based on the findings of this study, the researcher recommends that CRS teachers should be exposed and groomed through seminar/ workshops on how to employ concept mapping as a method of teaching.
- Teachers of CRS should be encouraged to employ concept mapping methods more often in teaching of CRS.
- The conventional methods of teaching should be de-emphasized in the school system hence many studies have revealed its inadequacy in enhancing higher achievement in teaching and learning process.

### **Educational Implications**

The study has provided empirical evidence on the efficacy of concept mapping as a method of teaching CRS. It therefore suggests the need for CRS teachers to employ concept mapping in teaching some abstract topics in CRS. In making use of concept mapping the teacher have to provide cordial environment in which equilibrium can occur in the minds of the students. Thus, the findings have implication for the government in the provision of in-service training for CRS teachers and an enabling environment for the use.

### **Conclusion**

Concept mapping is a teaching method that could enhance effective teaching and learning of major religious themes especially abstract concepts that student finds difficult to understand. Concept mapping method could help the teacher to present a holistic idea of some biblical stories that seems like a fairy tale in the memory of the learner. The researcher therefore concludes that concept mapping teaching method have positive effect on the learner's achievement in CRK.

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