Effects of Problem-Solving Teaching Competencies in the Upper Basic Students Academic Achievement in Social Studies in Akwa Ibom State, Nigeria

BY

Imoh-Obong Inyang INYANG, *Ph.D*
Department of Social Studies,
Akwa Ibom State College of Education,
Afaha Nsit, Nsit Ibom L.G.A.

AND

Imaobong M. AKPAN, *Ph.D*
Department of Social Studies,
Akwa Ibom State College of Education,
Afaha Nsit, Nsit Ibom L.G.A.

ABSTRACT

This study examined the effects of problem-solving teaching competencies in the upper basic students' academic achievement in Social Studies in Akwa Ibom State, Nigeria. This study adopted a quasi-experimental pretest-postest control group design with 4x2 factorial matries in which four intact classes of upper basic two students (JSS2) were taught Social Studies using problem-solving teaching competencies. A sample of 150 JSS2 students made up of 74 males and 76 females were drawn from two co-educational public schools through the use of simple random sampling technique. The study was guided by one research question and one corresponding null hypotheses. A 50-item Social Social Achievement Test (SSAT) was used to collect pre-test and post-test data for study. The data obtained were analysis of variance (MANOVA). Findings indicated that there was no statistical significant difference in achievement between the male and female students when they were taught using the problem-solving teaching competencies in Social Studies. Based on the findings it was recommended, among other things, that innovative activity-based competencies should be adopted in secondary schools especially in teaching and learning of Social Studies at the upper basic education level.

KEYWORDS: Problem-solving, Competences, Social Studies, Academic Achievement and Upper Basic Education

Introduction

Social Studies is a study connected to all aspects of human beings to enable them to live a fulfilled, comfortable, and full-of-achievement life. It studies people in relation to the social, academic, economic, cultural, physical and psychological lives. It has to do with the all-around development of human beings to enable them to become useful citizens in society. Social Studies is, by nature, a learner-centred, activity-based, interactive discipline. It is therefore out of order and against the teaching etiquette of the discipline that any teacher should adopt strategies that are in any way less than active-learner participatory techniques.

It is disheartening that the majority of teachers in Nigerian Social Studies classrooms continue to use the old teacher-centered approach in delivering their lessons, resulting in rote memorization of concepts, difficulty understanding the subject, poor academic achievement, poor attitude toward the subject, and failure to develop the relevant skills that meet the current needs and demand for vibrant, talented, intelligent, and creative graduates.These have contributed to the major causes of the continued dwindling of individuals, public, as well as government interests in discipline, particularly in Nigeria.

The overall aim of Social Studies education is for it to act as a vehicle for enlightenment, development, transformation, innovation, invention, progress, and growth in society (Inyang, 2008). The subject was introduced into the education system after the first and second world wars as a panacea for human environmental problems. According to Nkire (2016), human problems are by nature basically social, political, religious, economic, law-related, cultural, educational, as well as science and technological issues, while environmental problems primarily emanate from issues related to the various aspects of the natural environment, namely, water bodies, plant species, animal species, micro-organisms, landforms, and the atmospheric conditions. Thus, as a subject that holistically studies man (human being) and his interactions with the environment, it cuts across the boundaries of the arts, social sciences, and physical sciences and integrates parts of them into a single unitary whole.

Social Studies is a unique area of discipline that requires the highest level of competence among teachers with teaching competencies including those of communication, learners' activity, evaluation, motivation, utilization of instructional materials, organization, questioning, and lesson planning. The teacher's competence in engaging the learners in real-life problem-solving activities in every lesson enables the teachers and students to participate actively and effectively in lesson sessions.

Literature Review

This study is founded on the socio-cultural theory of learning that is traced to a group of revolutionary Russian psychologists in the 1920 and 1930s namely, Lev Vygotsky (1896 – 1934) and his colleagues A. N. Leanter and R. Luna. They formulated a completely new theoretical concept to transcend the prevailing understanding of psychology which was then dominated by psychoanalysis and behaviourism.

In the socio-cultural theory, Vygostsky believed that children do not develop in insulation but in a social matrix. Social matrix is formed by the interconnection of social relationships and interaction between the children (Zigler& Joseph, 2006). This kind of interaction can be facilitated in a Social Studies education class through cooperative problem-solving competences, guided inquiry classroom, hands on activities and project work. When students are guided to work independently or collectively, they perform better. It is therefore important that the problem-solving activities provided for students are capable of verbalizing the problem-solving process to help with the students' understanding.

The theory proves that children should be involved in problem-solving interaction and they should change their conception through intelligent action, speech and communication. Social Studies education being a subject that needs students' interactions and participation requires to be guided. Therefore, the teacher can help students through proper guidance to develop their

understanding of basic Social Studies education concepts by utilizing Vygotskian socio-cultural learning theory. The learning process requires students to be receptive, therefore environmental, physical, psychological and sociological factors such as gender and prior knowledge in the school all have an effect on students readiness to learn. Hence, this study would establish the extent to which children would be guided to construct their own knowledge when exposed to different learning activities. It is anticipated that students who have been achieving badly will show improvement upon being exposed to social interaction and assisted to learn as proposed by Vygostky's theory. Social Studies, as the study of human beings, their physical, social, economic, spiritual, scientific, political, cultural and psychological environment needs to be taught effectively based on problem-solving theory (Fadeiye, 2005).

Problem-solving competences involve techniques such as questioning, sorting, field trips, interviewing, brainstorming, role-playing, projects, use of resource persons, library searchand other creative activities (Adewuya, 2003).

All these techniques open up students to problem-solving activities as critical thinking searching for more knowledge, analyzing, investigating and collecting issues and ideas formulating hypotheses, experimenting, guesses and collecting and analyzing information (Adewuya, 2002). According to Joyce, Well and Calhoun (2000), inquiry/problem-solving is a learning process whereby questions are created or problems are developed by and based on facts and observations examined logically. Iyamu and Otote (2007) confirmed that inquiry/problem-solving is a whole complex of instructional phenomenon in which the teacher makes use of a variety of methods and activities and encourage students active involvement in the generation of their own knowledge. Craig (2001) defined a problem as any situation where one has an opportunity to make a difference or to make things better. Problem-solving is converting the actual current situation into a desired future situation. He explained further that the acts of creative and critical thinking about ways to increase the quality of life or avoid a decrease in quality are acts of problem-solving.

Problem-solving teaching competences usually involves an interest approach, a description of teaching objectives, identification of the problems to be solved, actual problem solution, testing of the solution, and an evaluation of the solution (Mann 2001). It is agreed to be essential to develop awareness in the student that they themselves have the reason why a solution is not being found to a particular problem. Mann also pointed out that if the teacher moves from a problem towards a solution, the student will be in the dark until the last moment. Ayeni (2007) reported that problem-solving approach is used to identify particular issues and raise questions on them, hypothesizing possibilities and seeking evidence to establish facts in educational research. In support of the above ideas, Herrmann (2007) agreed with Karl Dunker's Gestalt theory of problem-solving that recommended brainstorming or mind-storming at the first stage of problem-solving even before defining the problem. He explained further that brainstorming requires using the creative hemisphere of one's brain before the logical hemisphere takes over. Mistry, White and Berardi (2006) concluded that the area of problem-solving competencies is considered a high priority area, even in post-graduate studies development.

Herrmann (2007) equated preference dominance to creative problem-solving. He believed that dominance or cognitive thinking processes or preferred modes of knowing have advantages in qick response time and higher competences level. Douglas and Kistin (2000) agreed that students

can learn both new concepts and skills while solving problems. Jimoh (2001) also supported that idea that problem-solving teaching competences develops students' interest in critical thinking and evaluative reasoning. Abdu-Raheem (2010) concluded that if the steps required in the use of problem-solving method of teaching such as identification of problem, observation, interpretation, manipulation and creativity are properly utilized, students' academic achievement will increase drastically.

Orimogunje (2008) emphasized the need for using an innovative strategy such as problem-solving to connect the mismatch of post-primary Social Studies with the traditional lecture method. In support of the above idea, Bandele (2003) confirmed that the health of classroom interaction is dictated by the quality of instructions given during the actual lesson periods.

Studies have indicated that teachers who use problem-solving teaching competences in their process of teaching which emphasizeactive students' engagement in hand-on opportunity, improve attitudes towards learning and indicate a positive effect of achievement (Ekanolo, 2007 and Akinleye, 2010). Thus learning activities must entail participation from both students and teachers, determine what students need and should adopt to meet the needs of each learner in order to progress in learning.

Students achievement depend on "what teachers know about the subjects they teach and their ability to use a variety of methods to reach an increasing diverse student body" (John, 2000:1). Students achievement in Social Studies depend, in part on what students learn in the classrooms and in the field. And what they learn in classrooms and in the field depend in part on the nature and quality of instruction they encounter there. The quality of that instruction is itself highly dependent upon multiple critical system components – such as the quality of the teacher, the soundness of the curriculum, and the appropriateness of the teaching methods. Hence, a good education depends partly upon the existence and efficacy of the teaching methods used by the teacher (John, 2000).

Research Question: To what extent do problem-solving teaching competences of teachers affect the male and female students academic achievement in Social Studies?

The mean and the standard deviation of the male and female scores were completed to answer the research questions. The result of the data analysis have been summarized in table 1.

Table 1: Summary of mean and standard deviation of problem-solving competences by gender.

Source of Variation	N	X-	SD
Males	18	78.22	16.94
Females	20	78.70	17.51
Total	38		

The achievement of the male and female students when they are taught with problem-solving teaching competences showed that both groups achieved well and are above average. The males had a mean of 78.22 and a standard deviation of 16.94 while the females had a mean of 78.70 with a standard deviation of 17.51. The difference in the mean achievement was 0.48. Although

the females showed more promise, problem-solving teaching competences enhanced achievement of both sexes positively.

Research Hypotheses

Ho_1: There is no significant difference between the mean scores of males and female students taught using problem-solving competences.

The results of analysis of data in respect of the null hypothesis is summarized and presented in table 2.

Table 2: Summary of independent T-test comparison of the post-test scores of males and female students using problem-solving teaching competences.

Problem-solving teaching competences	N	X-	SD	Df	t-cal	t-crit	Decision
Males	18	78.70	17.51				
Females	20	78.22	16.94	36	0.086	1.96	Accept Ho
Total	38						

Not significant, P>0.05 level, critical t=1.96, degree of freedom = 36.

The result displayed in table 2 shows that there is no statistical significant difference between the achievement of males and female students when they are taught using the problem-solving teaching competences in Social Studies. The means (x) of the groups are 78.70 and 78.22 respectively for male and female students. It can therefore be concluded that the use of problem-solving competences has the same effect on both male and female students.

Discussion of Findings

The result of data analysis for the study showed that the achievement of the male and female students taught using problem-solving teaching competences by the teacher achieved well as the score of both groups are above average mark of 50%. Both groups showed a remarkable knowledge acquisition using the problem-solving competences. It can therefore be concluded that problem-solving competences affect the academic achievement of male and female students in Social Studies. This finding supports the findings of Adhu-Raheem (2012) and Rerveen (2010) who found out that problem-solving competences are more effective than conventional lecture techniques in improving students' academic achievement in Social Studies.

This finding is also consistent with Adeyemi (2003) who carried out a study on the effect of cooperative learning and problem-solving strategies on junior secondary school student's achievement in Social Studies. His finding revealed that there was no significant difference between the achievement of male and female students taught with problem-solving competences in Social Studies.

Conclusion

The findings of this study revealed that problem-solving teaching competences had significant positive effects on students' academic achievement in social studies in upper basic schools. That implies that students' ability to achieve academically in Social Studies was enhanced by the

problem-solving teaching competences rather than the lecture technique. In addition, gender was not a significant factor, as could be seen in all the results of the data analyzed.

Based on this finding, it was concluded that the effective use of these teaching competences can contribute significantly to increasing students' academic achievement in social studies in upper basic schools.

Recommendations

It is therefore recommended that:

1. Other things, that innovative activity-based competencies should be adopted in secondary schools especially in teaching and learning of Social Studies at the upper basic education level.

2. Teachers should avail themselves of every available opportunity to develop their problem-solving teaching competences in order to boost students' academic achievement. This will enable them to change from the long-existing practices of using teacher centered instructional strategies (e.g. simple lecture method) to the new participatory, functional, result-oriented and value laden instructional strategies that could provide the learners with the much needed knowledge, awareness and values in order to promote education for sustainability in Nigeria.

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