# INFLUENCE OF LESSON STUDY ON THE PROFESSIONAL DEVELOPMENT OF TEACHERS IN MARIAM BABANGIDA GIRLS' SCIENCE SECONDARY SCHOOL, MINNA, NIGER STATE

Celina S. Gana[1,*], Obabori H. Friday[2], Macmillan M. Josiah[3] and Jibril N. Mohammed[4]
[1]*School of Science & Technology Education, Federal University of Technology, Minna*
[2]*Physics Department, Federal Government College, Minna*
[3]*Faculty of Education, University of Jos*
[4]*Government Technical College, Minna*

*Corresponding E-mail: gana.celina@futminna.edu.ng (Tel: +2348034040840)

***Abstract:-*** *This paper examined the influence of lesson study on the professional development of teachers. Eleven teachers were randomly selected in Mariam Babangida girls' science secondary school, Minna and a questionnaire designed by the researcher was administered on the respondents for the purpose of finding the influence of Lesson study on their professional development since the teachers were exposed to this strategy. Percentage and t-test were used to analyze the data collected. The result showed that lesson study has a positive influence on teachers' professional development. The paper recommended that in lieu of other programs, school administrators should embark on School-based Lesson study as a form of in-house capacity building for staff.*

***Keywords:-*** *Lesson Study, Research Lesson, Teacher Professional Development, Students Learning*

## Introduction

The importance of teacher professional development cannot be overemphasized. It leads to improved output, in terms of the quality of instruction, pedagogical knowledge, content knowledge etc. This awareness has made stakeholders in education to have their hands on deck, knowing that, until this is achieved, our educational quality cannot be improved since teacher professional development is key to educational quality improvement of students' achievement and even economic growth of the society. So many train-the-trainers programs have been organized in Nigeria to enhance teachers' professional development. Experts train teachers and the teachers then go back to the Classroom to apply whatever has been learnt in the course of the training, so as to improve learning. This sometimes creates problems for schools; experts oppose each other rather than complementing each other so that the schools can develop as a community of Professional learners. According to Ingvarson, Meiers & Beavis, (2005), attention has drifted to Professional development as a means of enhancing the quality of teaching and learning in schools. The aim of any professional development programs is to ensure a viable professional community in schools so that the effects of the programs on classroom practices may be enhanced. International centre for Leadership in Education (2014) reported that, to prepare our teachers for a tasking relevant academics experiences delivery, capable of preparing our students to be ready for school and career, requires focused and sustained professional development, and necessary changes in the organization of the instructional programs in our schools.

This is why the Japanese Government came up with a model, known as "Jugyou kenkyuu", interpreted as "Lesson Study" or "Research Lessons" with the aim to improve the teaching and learning process; and improves teachers' professional development (Watanabe, 2002). . Lesson Study is a model which foster collaborative professional development process where an individual lesson is indepthly explored, thereby enhancing their learning and that of their students (Fernandez & Yoshida, 2004). In a comparative study carried out in 1999 by Third International Mathematics and Science Study (TIMSS), the Japanese were rated high above Germany and United States. This was largely linked to lesson study practice in Japan, which has led to teachers' professional development, the purpose for which it was innovated (Stigler

## Theoretical Framework

Social cognitive theory that guided the study is a psychological construct that is rooted in the view that individuals are agents proactively engaged in their own development. Key social cognitive theory is the fact that, apart from personal and environmental factors, individual possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions (Bandura, 1997). He also stated that individual self-efficacy is drive from four main sources: Mastery experiences, Psychological and emotional states, vicarious experience and social persuasion. Mastery experience is generally considered to be the most effective way to poster a stronger sense of self efficacy. Psychological and emotional arousal also increases self-efficacy when a person can reduce their stress reaction and alter negative tendencies in the face of adversity. Vicarious experience involves observing others succeed at a task, which may rise the belief that the observer could also succeed in performing the task. Social persuasion occurs when an individual is convinced or persuaded that he or she has the capabilities to be successful at a task.

Relationship between teachers' belief (teacher self-efficacy) and students' outcome have been focused by several studies carried out on teachers' efficacy as a significant factor underlying teaching and learning. Research have shown teacher efficacy or the extent to which a teacher believes he or she is capable of producing effects on student achievement, has positive effects on teachers' effort and persistence in the face of difficulties (Podell & Soodak, 1993). Based on these studies, it can be said that teachers' high self-efficacy is a factor which positively affect students' learning and academic achievement. By implication, scholars in science and technology education need to focus on the nature of perception of self-efficacy by their teachers' among others in their quest to unravel the phenomenon of underachievement in the science and technology.

## Statement of the Problem

Self-efficacy is one of the consistent measure of teachers' future success in the classroom in ensuring teacher quality in content delivery. Teachers' low level of content knowledge in science subjects (De Laat & Watters, 1995; Wu & Chang, 2006), inability to perform science experiments and other practical's (Muwanga-Zake, 2001), and inability to use technology in presenting science subjects (Hakverdi, Gugum & Korkmaz, 2007) has been urging researchers to determine effect of teachers self-efficacy as it contributes to incompetency in teaching. Lack of confidence by teachers in science classes has become a deteriorating factor that contribute to having a superficial knowledge by the teachers and consequently, these impact negatively on the performance of learners (Onwu & Stoffels, 2005; Arends & Phurutsi, 2009). Thus, how do we assist the teachers to be successful? The need to find science and technology teachers self-efficacy as it predict students achievement.

## Research Questions

1. What is the relationship between senior secondary schools' science and technology teachers' qualification and their self-efficacy?
2. What is the relationship of science and technology teachers' self-efficacy on senior secondary school students' achievement?

## Research Hypotheses

$Ho_1$: There is no significant relationship between science and technology teachers' qualification and their self-efficacy.

$Ho_2$: There is no significant relationship between science and technology teachers' self-efficacy and their students' achievement.

## Methodology

The study adopted a mixed method research design, this include survey and correlational research design. The population was all science and technology secondary school teachers in Bauchi. The research was conducted in some selected secondary schools within Bauchi. The sampling technique used was multi-stage sampling techniques. Five local governments were selected as clusters and the school were selected via simple random sampling. Purposive random sampling technique was used to sample teachers involved. The students records used was based on the result of the teachers involved in the study. The instruments used for data collection were Teacher Self-Efficacy 4-Likert point Scale (TSES) with Cronbach alpha reliability of 0.76 adopted from Tschanne-Moran & Woolfolk-Hoy in 2001 and students' school examination records for their achievement. The data was analysed using Pearson product moment correlation coefficient and regression analysis.

## Result

**Table 1: Pearson's Product Moment Correlation Analysis of Teachers' Qualification and their self-efficacy in Science and Technology**

| Variable | $\bar{x}$ | SD | N | R | $R^2$ |
|---|---|---|---|---|---|
| Teachers' Qualification | 53.67 | 8.44 | 15 | 0.60 | 0.36 |
| Teachers Self-Efficacy | 60.75 | 9.50 | | | |

at 0.05 α level.

Table 1, shows Pearson product-moment correlation coefficient between science and technology teachers qualification and their self-efficacy of 0.60. This means that, there exist a moderate and direct positive relationship between science and technology teachers' qualification and their self-efficacy. The coefficient of determination ($R^2$) associated with the correlation coefficient of 0.69 was 0.36. This coefficient of determination ($R^2$) indicates that, 36% of science and technology teachers' qualification accounted for their self-efficacy.

**Table 2: Regression Analysis of Teachers' self-efficacy and Students' Achievement in Science and Technology**

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 323.340 | 3 | 107.78 | 7.48 | 0.02 |
| Residual | 158.433 | 11 | 14.403 | | |
| Total | 481.773 | 14 | | | |

at 0.05 level of significance

Table 2, shows linear regression analysis with F-ratio of 7.48 and associated probability value of 0.02. This probability value of 0.02 was compared with 0.05 set as level of significant for testing the hypothesis and it was found to be significant because 0.02 is less than 0.05. The null hypothesis was rejected. Therefore, there was a significant relationship between senior secondary school teachers' self-efficacy and students' achievement in science and technology.

## Findings and Discussion

The first finding revealed that direct and moderate positive relationship between science and technology teachers' qualification and their self-efficacy is contrary to Cripe (2009) found that there was no relationship between self-efficacy and teacher qualification status in science. It's also in agreement Gopal and Stears, 2007; Omolars, 2008 shows that professional qualification influences teachers' competencies.

The second finding shows that the elationship between senior secondary school teachers' self-efficacy and students' achievement in science and technology agrees with Yoe, Ang, Chong, Huan and Quek (2008) that found a positive relationship between teachers' self-efficacy (instructional) and students' achievement. The finding also agrees with the finding of Tanya and Shumacher (2009) that indicated that collective teacher efficacy significantly predict student achievement.

## Recommendations

1. Teachers should be more committed and optimistic to the profession in order to improve their self-efficacy so that they can prepare their students with what is expected of them.
2. Stakeholders should endeavour to give teachers' more opportunities that will boast out their self-efficacy.
3. Science and technology teachers' self-efficacy should be given much consideration as it relates to students' achievement.

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