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## Spatial Pattern of Unemployment in the ECOWAS Member States: A Panel Data Analysis Approach

**Alaba, Oluwayemisi Oyeronke & Muse, Bernard Olagboyega**

<sup>1</sup>Department of Statistics, University of Ibadan, Oyo State, Nigeria

<sup>2</sup>Department of Economics, School of Social and Management Sciences,  
Bamidele Olumilua University of Education, Science and Technology,  
Ikere-Ekiti, Ekiti State, Nigeria.

**E-mail:** oluwayemisioyeronke@yahoo.com; bernola2006@yahoo.co.uk

### ABSTRACT

This study determined the efficacy of flipped classroom instructional package on undergraduate student's problem solving skills in integrated science in Federal University of Kashere, Gombe State. Simple random sampling technique was used to select 100 integrated science students in the Department of Science Education, Federal University of Kashere, Gombe State, Nigeria for the study. Participants were randomly assigned to lecture method and flipped classroom instructional strategies. The duration of treatment lasted for 12 weeks. Two main validated instruments were used in the study thus: (1) Integrated Science Problem Solving Ability Test (ISPSAT,  $r=0.85$ ) and Flipped Classroom Instructional Package (FCIP). Two research questions were raised to find out the difference between pretest mean scores of students' problem solving skills in lecture and flipped classroom instructional strategies and gender as well. Two hypotheses were raised to test the significant difference between lecture and flipped classroom instructional strategies integrated science and significant difference between gender and students' problem solving skills. The two hypotheses were tested at 0.05 level of significance. Data were analysed using mean, standard deviation and t-test analysis. Finding revealed that there was significant difference in the students' problem solving skills between participants taught with lecture and flipped classroom instructional strategies. The result also showed that there was no significant difference between male and female students' problem solving skills. Integrated science lecturers should be trained and educated through workshops, seminars, conferences on the instructional benefits of the use of flipped classroom instructional package, among others.

**Keywords:** Flipped Classroom Instructional Strategies, Undergraduate Integrated Science Course, Students' Problem-solving Skills, Nigeria, Gombe,

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