Mathematics Education and Educational Evaluation: The Foundations of Hope for Societal Transformation

Joshua Oluwatoyin Adeleke
Professor of Mathematics Education and Educational Evaluation,
Institute of Education,
University of Ibadan,
Ibadan, Nigeria

Abstract

This inaugural lecture explores the interrelationship between mathematics education and educational evaluation as key to social transformation. The lecture also focuses on the hope the combination of the two disciplines brings to life and career-initiative for societal advancement. Both disciplines promote educational goal attainment through intellectual development, innovation, for national development. It also points out that mathematics not only develops critical thinking, the ability to solve problems, and rational thinking, but also, most importantly, addresses the complexities of modern society. The thrust of the lecture also validates the fact that effective learning of mathematics requires high cognitive entry criteria, learner involvement and teacher competence, therefore, showing the need to use context-specific and learner-centered instructions.

The lecture also provides a broad range of scholarly input into the mathematics education field, namely: learning opportunities and predictors of student achievement. It depicts the influence of the prior knowledge, preparation, and teaching plans on the outcome of learning through empirical research. Novel methods of instruction such as mastery learning, after-school intervention, and constructivist models are disclosed to enhance the performance and confidence of learners in mathematics. Additionally, development of instruments of measurement like mathematics value scales and opportunity-to-learn frameworks have assisted in supporting research and practice. Gender, equity and affective variables are also addressed as well as their relation to learning and give evidence-based findings to break stereotypes and promote inclusive learning environments.

The lecture demonstrates the importance of evaluation to the field of education with respect to quality, accountability and equity. It provides appraisal as not merely technical activity, but a moral and developmental instrument in order to drive policy and practice. Theories and testing of assessment tools, psychometric testing methods, including the Item Response Theory and massive evaluation studies capable of stimulating educational changes are all presented in the lecture. Evaluation does not only improve the credibility, fairness and effectiveness of assessment practices, but now serves as a tool that ascertains the capabilities of learners and realities on ground. The use of technology in assessment, such as e-testing and digital feedback mechanism is also thought to be one of the avenues of increasing accessibility and effectiveness.

Another significant issue in the lecture is the interdependent nature of the relationship among teaching, learning and evaluation. It helps to verify that meaningful learning can only be actualised in an instance of continual instructional delivery with valid and reliable assessment processes. The assessment is therefore developed as both a diagnostic and transformative tool to reveal inadequacies, identify gaps, inform interventions, and promote continuous improvement.

In summary, the lecture reiterates that mathematics education and educational evaluation are tools for the creation of hope, equity, and sustainable development. It entails synergistic interactions among the teachers, policy makers and other stakeholders towards the goal of a positive and holistic education system creation that empowers students and addresses social problems by providing a responsive education. It suggests a long-lasting commitment to research, teacher growth and a novel system of evaluation to cause a significant change.

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