Developing a Tool to Assess the Content of the Physics Book for Secondary Stage in the Kingdom of Bahrain in view of the National Science Education Standards

A Thesis Submitted in Partial Fulfillment of the Requirements for the Master's Degree in Educational Measurement and Evaluation

Submitted by
Abdulla Ali Al Mofrih Al-Qahtani
University number: 20114657

Supervised by
Dr. Noaman M. Saleh Al-Musawi
Associate Professor of Educational Measurement and Evaluation
University of Bahrain

KINGDOM OF BAHRAIN
November/ 2014
Developing a Tool to Assess the Content of the Physics Book for Secondary Stage in the Kingdom of Bahrain in view of the National Science Education Standards

Abstract

The purpose of study was to develop a tool to assess the content of the physics book for secondary schools of the Kingdom of Bahrain based on the National Science Education Standards (NSES), and to investigate the relationship between teachers' ratings of the content of physics book and some variables of interest.

The final version of the measure included 30 items that conform to validity standards and that cover four domains related to the content of the physics book: Scientific concepts and processes; Scientific inquiry skills; Physics for the individual and society; and Modern technology in physics.

After that, the developed tool was administered to 57 randomly selected physics teachers in secondary schools of Bahrain, and its psychometric properties were adequately investigated. As a result, high validity and reliability indices were obtained, where reliability value for the whole measure was .93, indicating the applicability of the developed tool to the measurement of physics content in the secondary school.

Moreover, the study revealed statistically significant differences in the mean teachers' rating of the content of the physics book that can be attributed to gender, in favor of males. No statistically significant differences, however, were found in the mean teachers' rating of the content of the targeted physics book that can be attributed to the level of educational and scientific qualification, teacher's professional experience, and teacher training in the field of assessment.

On the basis of the results, the utilization of the developed tool to pinpoint the strengths and weaknesses of the content of the physics book assigned for the secondary school, and to enhance it in view of scientific developments, is recommended. The findings also serve a profound basis for designing valid tools to measure the content of other scientific subjects in secondary school based on the National Science Education Standards.

Key Words: Content Assessment, The Physics Book, National Science Education Standards, Secondary Education, Kingdom of Bahrain.