

USE OF DISTRACTOR ANALYSIS IN EVALUATING INSTRUCTIONAL  
EFFECTIVENESS: A METHOD FOR DIAGNOSING ITEM ERROR RESPONSE  
PATTERNS TO IMPROVE TEACHING AND LEARNING

A Dissertation

by

EDUARDO CANCINO

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## ABSTRACT

Cancino, Eduardo, Use of Distractor Analysis in Evaluating Instructional Effectiveness: A Method for Diagnosing Item Error Response Patterns to Improve Teaching and Learning. Doctorate in Education (EdD), May, 2009, 110 pp., 15 tables, 12 illustrations, references, 63 titles.

The purpose of this quantitative study was to examine the use of a method of distractor analysis for diagnosing item error response patterns and determine the effect of this intervention on student achievement levels on state administered spring mathematics assessments. Distractor Pattern Functioning was the treatment provided to teachers in this research study to evaluate examinee group performance on the incorrect answers by determining categorical patterns of group distractor selection.

Methodology. This quantitative research reviewed four years of 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade mathematics Texas Assessment of Academic Skills (TAAS) data. Three school districts selected for this study participated in the method for analysis of error response patterns. The selected school districts were comprised of a total of 25 elementary campuses each serving students in grades three, four, and five. In this three-factor experiment with repeated measures, a three-way factorial ANOVA with two between factors district size and grade level and one within factor trials (3 X 3 X 4) was the research design used.

Results. Significant difference was found between student performance and trials.

Specifically, mean difference comparisons between trial 1 and trial 3, trial 1 and trial 4,

trial 2 and trial 3, trial 2 and trial 4 indicated a significant difference. This is especially noteworthy in that the intervention or treatment was provided to elementary teachers between trial 2 and trial 3.

Conclusions. The DPF method introduced in this research study is assessment result data analysis methodology that utilizes the power of distractor evaluation. Implementation of the DPF method for distractor analysis can provide educators with targeted information as to instructional strengths and instructional limitations and support educator efforts at identifying and implementing instructional resources, instructional strategies, and instructional interventions that have greater levels of effectiveness in the instructional process.