



# Psychometric Properties of a Test Anxiety Scale for Use in Computer-Based Testing in Kenya

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**Abstract:** Test anxiety is a psychological variable that diversely impacts academic test performance. Test anxiety tools are developed to understand and predict its impact in different test settings. It is important to determine the reliability and validity of these tools to affirm the measures they provide. Additionally, where computers have been used in testing, there is a further need to assess the impact of test anxiety accurately. The purpose of this study was to find out the psychometric properties of the 10-item Westside Test Anxiety Scale (WTAS) that was adapted for use in Kenya. The study also investigated the effect of test mode on test anxiety. The study sample comprised 424 male and female pupils in public primary schools in Nairobi, Kenya. In a between-groups experimental set-up, 208 pupils were assigned randomly to sit a computer-based science test, and 216 pupils were assigned to the paper-based version. The WTAS was thereafter administered to pupils in both groups. An analysis of the test anxiety tool revealed adequate internal consistency and person reliability estimates. The tool also fulfilled the key Rasch model assumptions of local independence. Though all the items fitted the Rasch model, three items had disordered categories. Exploratory factor analysis revealed two additional test anxiety factors. An independent sample t-test showed that test mode had a small and insignificant effect on test anxiety. The study recommended that future studies consider developing localized test anxiety tools rather than adapting from foreign sources.

**Keywords:** *Psychometric Properties, Test Anxiety, Computer-Based Testing, Test Mode, Rasch Model*

## Introduction

### Test Anxiety

Test anxiety is an adverse psychological condition that learners in any educational setting experience. It refers to the interacting affective, cognitive, physiological, and behavioral responses that occur prior to, during, and following a test (Harpell and Andrews 2013). It is viewed as a relatively stable trait where a learner responds to tests with fairly consistent and varying intensities of anxiety. Test anxiety is mainly triggered by fear of failure in a test and makes learners feel insecure about their abilities in the test. For those learners who experience lower levels, it acts as a motivator for better test performance. According to Colwell (2013), at higher levels, test anxiety interferes with recall activities and lowers mental concentration which leads to lower test performance.

Test anxiety is prevalent in learning institutions and contributes to psychological distress (lack of peace) and demotivation (lack of motivation to study) especially when dealing with high-stakes testing. Saravanan, Rajiah, and May (2014) suggested that test anxiety is more