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## A Comparison between Three-and Four-Option Multiple Choice Questions

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### Abstract

To write plausible options for multiple choice questions (MCQs) is often a demanding job for test makers. Three-option MCQs might be a solution for the process of test making as well as test taking. This study was an attempt to compare three-option MCQs with four-option in terms of test usefulness. The participants were 114 second semester medical students taking the tests as their final examination concurrently while the time of test completion was recorded. The collected data were analysed by SPSS with the use of an independent t-test. The findings showed some differences in usefulness of these two test formats.

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### 1. Introduction

Multiple choice questions (MCQs) enjoy widespread popularity owing to particular features which make them highly objective instruments for measurement. Despite their long history which dates back to the early 1900s (Landrum, 1993), these tests are still in extensive use in higher education for their high reliability, high content coverage, rapid and economical scoring and openness to item analysis. On the other hand, they have a negative reputation as having low validity, testing factual knowledge rather than a high level of cognitive knowledge,

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increasing guessing (especially as the number of options decreases) and consuming more time in the process of test development in particular finding plausible distractors. As the demands of multiple choice tests entail a high level of item writing skills and experience (Hughes, 2003), writing meaningful, precise items which leads to fair scores is one of the main concerns of language teachers. It is an art, Ebel (1951) notes, that can be acquired through practice and experience; however, two groups of teachers are more at the risk of writing poor items: novice teachers and teachers who may lack adequate competence in test writing. These teachers are often engaged in making multiple choice tests for diagnostic purposes in classroom-based assessment. Many times the four- option items they write appear to be defective containing implausible options. Look at the following example taken from a test made by a novice teacher:

*We must protect and preserve our .....resources for the next generation that has to encounter scarcity of natural resources.*

*a. moral*

*b. vital*

*c. oral*

*d. arsenal*

The example shows that the fourth option is not plausible; therefore, the likelihood of omitting the item or searching for another item increases, the process of item writing, in turn, becomes longer and more difficult, and the test maker may use options like “all of the above” or “none of the above” as the last resorts, again increasing the chance of guessing.

The literature shows many studies in favor of three-option multiple choice tests. Landrum et al (1993) found that students’ performance on a three- option was better than a four-option test format. In a study of the comparison of three, four and five option MCQs, Farhady & Shakery (2000) found no significant difference in psychometric characteristics of these test formats, thereby recommending three-option MCQs as a better test format than four or five options. Rodriguez (2005) in a meta-analysis of 80 years multiple choice questions found that three- option tests improve content coverage while not affecting the psychometric quality of the tests. Vyas and Supe (2008), through a literature review, found no significant difference between three, four and five option test formats for assessing medical students. However, three option tests improved efficiency and administration as fewer distracters were needed, thus saving time and space for inclusion of more items and more content, while requiring less reading time for test takers. Tarrant and Ware (2010) comparing psychometric properties of three- and four-option test formats in assessing nursing students, supported the three-option test format for containing more functioning distracters and higher discriminating effects, while requiring less time for test development and administration and providing no advantages in reliability and validity. In a study of three, four, and five options for a listening test Lee and Winke (2012) found that the three-option multiple choice test appeared to have a higher mean difference than the other test formats, while there was no difference in terms of item discrimination. Delgado and Prieto (2012) provided evidence favoring three-option test formats as they found no decrease regarding item discrimination and tests reliability as compared with four-option test format in computerized examinations.

Although the literature is in favor of three-option multiple choice, four-option multiple choice is conventionally used in many medical schools where the dominant trend is toward objective tests. This paper was an attempt to examine three and four-option multiple choice test to provide more evidence for three-option multiple choice test from the perspective of test usefulness, proposed by Bachman and Palmer (1996), as the most important quality of a test. Test usefulness, consisting of several functional variables: reliability, validity, authenticity, instructiveness, impact, and practicality, is a tool which enables the test developer to evaluate the test he designs.

## **2. Method**

This comparative-descriptive study was conducted in the school of medicine at Iran University of Medical Sciences(IUMS) in 2013.

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