

## INVESTIGATING THE ADOPTION OF COMPUTER BASED TESTING SYSTEM IN TERTIARY INSTITUTIONS USING CROSS-IMPACT METHOD

Adebayo A. A<sup>1</sup>, Alo O. O<sup>2</sup>, Ganiyu R. A<sup>3</sup> & Adepoju T.M<sup>4</sup>

<sup>1</sup>Research Scholar, Lautech ICT Centre, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

<sup>2</sup>Research Scholar, Department of Information Systems, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

<sup>3</sup>Research Scholar, Department of Computer Engineering, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

<sup>4</sup>Research Scholar, Department of Computer Engineering, Federal Polytechnic, Nigeria

Received: 26 Apr 2021

Accepted: 04 May 2021

Published: 11 May 2021

### ABSTRACT

Computer-Based Test (CBT) system has become the order of the day in terms of assessing examinee capability in examinations which is not limited to students but also to job seekers because of its instant delivery of results. This paper studied each event that contributed to the adoption of CBT in the tertiary institutions and the correlation between events which made it possible to know the effect of certain event over the others. A questionnaire was administered on experts in three selected tertiary institutions in Oyo state (Ladoke Akintola University of Technology, Ogbomoso, The Polytechnic of Ibadan, Ibadan and Emmanuel Alayande College of Education, Oyo). The questionnaire was structured to collate the opinions of experts on the probabilities of single occurrence and conditional occurrence of Examination Policy (EP), Availability of Software and Hardware (SH), Lecturers Acceptance (LA), School Management Commitments (MC) and Students Performance (SP) which are the five major relevant events considered for the adoption of Computer based testing system in tertiary institutions. The data obtained through the questionnaires were analysed to derive the Initial Probability and Conditional Probability which constitute the Cross-Impact Probability matrix for the occurrence of considered events. Sensitivity testing was performed on each event by selecting initial probability value of an event and change from its original value to 1, provided other events remain constant and the test is run to determine its effect on all other events.

The results of sensitivity testing showed that with an increase in initial probabilities of SH, LA, MC and SP, the EP experienced the highest significance changes of 8, 11, 4 and 10% respectively and an increase in initial probabilities of EP, LA, MC and SP, the SH experienced the highest significance changes of 9, 14, 6 and 13% respectively. An increase in initial probability of EP, SH, MC and SP, the LA experienced the highest significance changes of 14, 16, 12 and 19% respectively, while an increase in initial probabilities of EP, SH, LA and SP, MC experienced the highest significance changes of 3, 4, 6 and 5% respectively and with an increase in initial probabilities of EP, SH, LA and MC, the SP experienced highest significant change of 12, 10, 18 and 10% respectively.

**KEYWORDS:** Computer-Based Test, Initial Probability, Conditional Probability, Cross-Impact, Sensitivity Testing