INVESTIGATING ITEM PARAMETER DRIFT ACROSS COMPUTER- AND PAPER-BASED ASSESSMENT MODES IN PISA 2015 MATHEMATICS

International large-scale assessments (LSAs) are important for educational comparisons among the countries. Programme for International Student Assessment (PISA) is an effective international LSAs. It assesses educational changes by country every three years since 2000. The results inform policy makers about the development of 15-year-old students’ reading, mathematics, and science literacy abilities. The validity of the test scores has gained more attention in PISA 2015, because it included a transition from paper-based assessment (PBA) to computer-based assessment (CBA) in most countries. In order to make valid assessment modes comparisons, an essential task is to ensure measurement and test score equivalence between assessment modes. This study will investigate the item parameter drift (IPD) across the two assessment modes in the PISA 2015 mathematics test. The data consist of all participant students from PISA 2015 participating countries and their responses to the 81 items administered via both assessment modes. The analyses were performed using the ordinal-logistic regression (OLR) method.

Results of IPD analysis revealed that 76 out of 81 of the mathematics items exhibited IPD values across the assessment modes. This result revealed that assessment mode is one of the reasons of IPD which need to be considered detail in LSAs application process. The findings indicate potential reasons of reduced valid test score interpretation with regarding to assessment modes. The study provides useful information to the usage of assessment modes.

Key Words: Item-parameter drift, Validity, Computer-based assessment, International large-scale assessments, PISA.