Design and Validation of a Digital Competence Standards (DCS) Instrument for Higher Education Lecturers in Open and Distance Learning (ODL) Programs: Assessing Reliability and Validity

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Abstract:

The term Open and Distance Learning (ODL) encompasses two key aspects: first, instruction is primarily delivered by lecturers who are physically and temporally separated from students; second, ODL aims to introduce greater openness and flexibility into the curriculum, accessibility, and structural elements. In Malaysia, however, there is currently no standardized framework for assessing digital competence among academicians, particularly lecturers in higher education institutions. This article seeks to develop and validate an instrument for measuring Digital Competence Standards (DCS) specifically for lecturers involved in teaching and coordinating ODL programs. The instrument comprises 35 items derived from four internationally recognized frameworks: the Digital Competence Framework for Educators (DigCompEdu), ISTE Standards, IC3 Digital Literacy Certification, and The Technology Integration Matrix (TIM). Data was gathered through an online survey, with 35 questionnaires distributed to selected respondents. The analysis was conducted using Winstep version 3.69.1.11, focusing on item reliability, person reliability, and compatibility indices such as "infit," "outfit," and "Point Measure Correlation". The results revealed that the DCS 2 instrument demonstrated high reliability, with a Cronbach's alpha of 0.96, item reliability of 0.88, and person reliability of 0.96. The compatibility analysis indicated that 34 of the 35 items fell within the acceptable range for "infit" and "outfit" values, meeting the Rasch model's key requirements. However, one item requires revision to enhance the psychometric quality of the instrument. Overall, the instrument exhibits strong psychometric properties based on the four analyzed indicators. In conclusion, the developed instrument is valid and reliable for assessing the digital competence of academicians. Establishing such competency standards is essential for lecturers involved in ODL programs, providing both a guideline and a framework adaptable to Malaysia's higher education context.

Keywords:

Digital Competence, Higher Education, Open and distance learning (ODL), Reliability and Validity, Rasch model.