

## Development of Ocean Literacy Scale for High School Student

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This study established a Chinese scale for measuring high school students' ocean literacy. This included testing its reliability, validity, and differential item functioning (DIF) to compensate for doubtful research results stemming from the lack of DIF tests for current scales. The English version of the International Ocean Literacy Survey questionnaire developed by the National Geographic Society, the National Oceanic and Atmospheric Administration, and the Centers for Ocean Sciences Education Excellence was used as the basis for this study. After it was translated into Chinese, its construct validity and reliability were verified and tested by analyzing its items using the Rasch model; a gender DIF test was also conducted to ensure the fairness of the test results when distinct groups were compared simultaneously. The results indicated that the scale established in this study was unidimensional and possessed favorable internal consistency and construct validity. In terms of the gender DIF test, despite the DIF analysis results indicating that a few items were difficult for either females or males to answer correctly, experts and scholars suggested retaining them after discussing individual items. The final Chinese version of the ocean literacy scale developed by this study comprised 48 items that help reflect high school students' understanding of ocean literacy, which is necessary to understand the topics of marine science encountered in real life.

Keywords: ocean literacy, item response theory, high school students