The Measurement Invariance of the Computational Thinking Self-efficacy Scale

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Computational thinking is one of the basic abilities that students should have in the 21st century (Grover, 2018). Many countries have noticed the importance of computational thinking and included it in the national curriculum, including Taiwan.

Because of its importance and a large number of studies demonstrate the impact of self-efficacy on academics, therefore, we have developed a scale to evaluate students' self-efficacy in computational thinking (Kuo, Li & Wu, 2021). The scale was constructed by the framework of Zhong, Wang, Chen, & Li (2016), which has three dimensions: computational thinking concepts, computational thinking practices, and computational thinking perspective. After verifying the confirmatory factor analysis and reliability analysis, the results show the scale's reliability and construct validity.

Since the subjects of the scale span different genders and ages, in this research, we examine the measurement invariance of the scale, the measurement invariance analysis was performed to verify whether the scale has measurement consistency across groups. The results show that the scale has "configural invariance", "metric invariance" and "scalar invariance ".