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University students' subjective knowledge of green computing and pro-environmental behavior (Article)

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Abstract

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This cross-sectional survey examined the structure of university students' subjective knowledge of green computing -hypothesized to be a multidimensional construct with three important dimensions- and its association with pro-environmental behavior (PEB). Using a previously validated green computing questionnaire, data were collected from 842 undergraduate students attending ten different public universities in Malaysia. The sample was split into two random halves (n_1 = 400 and n_2 = 442) to allow for Factor Analysis procedures and Structural Equation Modeling (SEM) to be conducted. Principal Component Analysis extracted a three-factor structure of subjective knowledge consisting of knowledge about green computing (GC) vocabulary, computer nature or characteristics, and e-waste, while Confirmatory Factor Analysis procedures confirmed the structure's measurement validity. SEM fit statistics indicated a strong influence of subjective GC knowledge on PEB with its three extracted dimensions cumulatively explaining 37% of students' reported PEB. The results confirmed the study's hypotheses regarding the multidimensionality of subjective knowledge, the adequacy of the measurement model of subjective knowledge, and its strong positive role in influencing PEB. The article concludes with guidelines for future research in areas involving green computing, subjective knowledge and PEB with an emphasis on the conceptualization and measurement of each construct. © Canadian Center of Science and Education.

Author keywords

Confirmatory factor analysis | Green computing | Multidimensionality of knowledge | Principal component analysis | Pro-environmental behavior | Structural equation modeling | Subjective knowledge

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