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SES

Many researchers have defined SES as being composed of

household income, parental education level, parental

occupation, and household possessions (Aerschot and

Rodousakis 2008; Blignaut 2009; Hohlfeld et al. 2010).

However, there has been debate over whether SES should

be measured reflectively or formatively as a construct

(Howell et al. 2007) in SEM. This study followed the

suggestion of Edwards and Bagozzi (2000) that SES should

be represented indirectly and formatively, so the index of

economic, social and cultural status (ESCS) variable in the

PISA data was chosen to represent SES. ESCS is calculated

based on a number of indices, including the highest educational

level of the parents, highest parental occupational

status, and household possessions (OECD 2014b).

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**Economic, Social, and Cultural Status (ESCS).** This measurement is constructed by PISA using principal component analysis (PCA) from several other items throughout the survey (OECD, 2017b). The components are parental education (PARED), highest parental occupation (HISEI), and home possessions (HOMEPOS). PARED asks students if their parents have no education, primary education, lower secondary education, vocational/pre-vocational upper secondary, general upper secondary, non-tertiary post-secondary, vocational tertiary, or theoretically-oriented tertiary and post-graduate. HISEI asks the students an open ended question of both their parents’ employment. The responses were interpreted and coded as a four digit code to enable cross cultural comparisons. The HOMEPOS variable was comprised of 16 questions that asked about the amount and types of items in each student’s home. These three combined variables allow researchers to make an inference to family income or wealth. The ESCS scores are standardized for a standard deviation of one and so that a value of zero represents the overall OECD average. In Bulgaria, the mean ESCS is -.06 with a standard deviation of .98. In Finland, the mean ESCS is .26 with a standard deviation of .75. This measure will be used as an indicator of student SES in the current study.

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the following variables were used as controls in the basic model: grade, gender, household’s

socio-economic status (an index created by the OECD capturing both incomeand

education-related household variables), a dummy variable for student’s migration

background,