Are teachers’ approaches to teaching responsive to individual student variation? A two-level structural equation modeling

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Abstract In the framework of teacher’s approaches to teaching, this study investigates the relationship between student-related variables (i.e., study time, class absence, domain knowledge, and homework completion), students’ approaches to learning, and teachers’ approaches to teaching using structural equation modeling (SEM) with two independent data samples. The participants were 61 biology teachers and their corresponding 1,518 high school students (12th grade). The first sample was used to fit the model, and the second sample was used to analyze the consistency of the data derived from the first sample. Using a two-level SEM analysis, we established whether the effects found at the individual level varied significantly at class level. The students’ approaches to learning were related to the teachers’ approaches to teaching as a function of the hypotheses established in the model, although the effect size was smaller than expected. However, approximately 48% of the variance of the surface approach and 46% of the deep approach sat at class level. At the individual level, the results of this study suggest that students’ approaches to learning significantly explain their teachers’ approaches to teaching and, thus, constitute important contextual variables. At the class level, the way students learn appears to be closely associated with class-related variables. Our data stresses the importance of promoting educational opportunities (e.g., school-based courses) for teachers to reflect upon the teaching methodologies used in class.

Keywords Approaches to learning • Approaches to teaching • Two-level SEM • High school

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