Same Item in Different Eyes: Structure of Independent and Interdependent Affordances among Physics and Chemistry Undergraduates

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Description:

Perceptions of independent or interdependent affordances drive students’ choices into different STEM fields (e.g. engineering vs medical). However, does the same affordance align with the same value for different students? Exploratory factor analyses show that making contribution to the society were perceived as interdependent in chemistry classes but independent in physics classes. All students perceived gaining high status and impressing others as different from other agentic affordances.


*Analyses are ongoing and manuscript is in draft.

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Abstract:

Perceptions of whether a STEM career affords the pursuit of independent or interdependent values drive students’ choices into different STEM fields (e.g. physics and engineering vs health and medical science). However, does the same affordance align with the same value for different students? We used exploratory factor analyses to investigate the structure of independent and interdependent career affordances (16 Likert-scale items) among 905 undergraduates in Fall 2018 Chemistry (N = 503; 71% women; 29% Latino/a, 24% Southeast Asian, 21% East Asian, 14% White; 54% first-generation [FG] college students) and Physics (N = 402; 26% women; 12% Latino/a, 19% Southeast Asian, 37% East Asian, 21% White; 33% FG college students) introductory courses. We found making contribution to the society were perceived as interdependent in chemistry classes but independent in physics classes. Other interdependent affordances were perceived similarly across subjects. All students perceived gaining high status and impressing others to be different from other agentic affordances (e.g. having a sense of personal accomplishment). We also examine differences by gender, racial/ethnic, and first-generation college-going status.