Predicting Professional Development in the Sciences
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Retention in science, technology, engineering and math (STEM) is a cross-national priority. Research suggests that capitalization (i.e., engaging voluntary professional development activities) helps anchor students to STEM majors. This study examined supports, barriers, and proactive personality as predictors of capitalization variables, including capitalization actions (i.e., engaging in voluntary professional development activities), capitalization intentions (i.e., plans to engage in professional development in the future), and outcome expectations (i.e., beliefs about anticipated results of capitalization). Supports are the encouragement and assistance provided by peers, faculty and advisors in the STEM major environment. Two types of barriers were considered, including discouragement from peers, faculty, advisors, and family members, and students’ time constraints. Of particular interest, was the extent to which proactive personality might mitigate the influence of supports and barriers on capitalization outcomes. Data were collected from computer science and engineering majors at two universities (N = 170). A web-based survey measuring proactive personality, supports and barriers was administered at the beginning of Fall 2010; the survey assessing capitalization outcomes was administered at the end of the semester. Regression analyses revealed that proactive personality was related to all three outcomes. Supports, time barriers, and discouragement were also related to some outcomes. In addition, for both capitalization intentions and outcome expectations, proactive personality interacted with discouragement in a manner that mitigated the negative influence of discouragement.
Results show that both individual differences and contextual supports and barriers are linked to capitalization. Moreover, individuals high in proactive personality are resilient in the face of discouragement.