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A Sociocognitive Perspective of Women's Participation in Physics: Improving Accessibility throughout the Pipeline

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Sociopsychological theories and empirical research provide a framework for exploring causal pathways and targeted interventions to increase the representation of women in post-secondary physics. Women earned only 19.7 percent of physics undergraduate degrees in 2012 (APS, 2015). This disparity has been attributed to a variety of factors, including chilly classroom climates, gender-based stereotypes, persistent self-doubt, and a lack of role models in physics departments. The theoretical framework for this research synthesis is based upon several psychological theories of sociocognitive behavior and is derived from three general constructs: 1) self-efficacy and self-concept; 2) expectancy value and planned behavior; and 3) motivation and self-determination. Recent studies have suggested that the gender discrepancy in physics participation may be alleviated by applying interventions derived from social cognitive research. These interventions include social and familial support, welcoming and collaborative classroom environments, critical feedback, and identification with a malleable view of intelligence. This research provides empirically supported mechanisms for university stakeholders to implement reforms that will increase women's participation in physics.