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## **THE DUAL NATURE OF EMOTIONS: RELATIONSHIPS WITH MOTIVATIONS AND INSTRUCTIONAL CHANGES**

### **Abstract:**

Recently, researchers called for more research to examine the reciprocal nature of emotions, and how emotions influence individuals' motivations and changes in various learning contexts (Darby, 2008; Poon et al., 2012). In the current mixed-methods study, we examined longitudinally teachers' emotions about their involvement in a professional development program, and how emotions impacted their program motivation and instructional changes.

To explain the reciprocal nature of emotions, and the interplay between motivations, emotions and changes, we used the theoretical framework of Control Value (CVT, Pekrun, 2006). The CVT states that individuals' emotions and motivations in academic-related behavior will depend upon the extent to which they believe they have some amount of control and the extent to which they value that behavior.

A total of 90 teachers participated in a six-week summer Research Experiences for Teachers (RET) program at the National High Magnetic Field Laboratory (Magnet Lab) in Florida, United States over a period of seven years. Teachers were mentored by a scientist, thus allowing them to learn science and valuable research skills. The RET program was funded through the National Science Foundation (NSF) and has been shown to have a positive impact on teachers' thinking, motivation, and science instruction (Dixon & Wilke, 2007; Pop et al., 2010). These 90 RET attendees were contacted after their attendance and were invited to take part in the current study; 67 teachers responded to the study invitation, and thus completed the study survey.

A mixed-methods study design was employed in the current study, in a two-phase approach. In the first phase of the study quantitative data was collected via online surveys, and in the second phase of the study, in-depth interviews were collected from selected participants to augment the quantitative results.

Overall, study results showed that emotions played an important role in teachers' engagement in the RET program and triggered changes in thinking and science teaching practices. We found differences in emotions before and after teachers' engagement in the RET program, and differences in emotions between teachers from different grade levels. Positive correlations were found among teachers' motivations, emotions and changes to their teaching practices suggesting the powerful nature of emotions. Further, qualitative results showed how particular individuals view their emotions as a catalyst for change in their motivation for learning, and changes to their instructional practices. Contributions from study findings are discussed in relationship with teacher learning and professional training.

**Keywords:**

Emotions, Motivation, Instructional Practices

**JEL Classification:** I29