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# Implicit beliefs, achievement goals, and procrastination: A mediational analysis

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ABSTRACT

As a maladaptive behavioural outcome, procrastination should correlate with beliefs about ability and achievement goals that are themselves relatively maladaptive. Accordingly, procrastination should be predicted by entity as opposed to incremental implicit theories (i.e., viewing attributes such as ability as relatively fixed vs. malleable, respectively) and by avoidance goal orientations as opposed to approach goal orientations. Among 397 undergraduates, entity beliefs and mastery-avoidance goals positively predicted procrastination whereas incremental beliefs and mastery-approach and performance-approach goals negatively predicted procrastination. The prediction of procrastination by entity beliefs was mediated by mastery-avoidance goals. Results are cast in terms of self-regulatory models of procrastination.



Procrastination is commonly conceptualized as involving failure of self-regulation (e.g., Steel, 2007). As such, it should be possible to predict procrastination using variables implicated in models of self-regulation applied to learning. Self-regulated learning is defined as the "active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features of the environment" (Pintrich, 2000, p. 453). Two variables emphasized in models of self-regulated learning are implicit theories and achievement goal orientations.

## 1. Implicit theories and achievement goal orientations

An important variable associated with motivation and learning is the extent to which personal attributes, such as ability, are viewed as fixed or malleable (Dweck, 1999; Dweck, Chui, & Hong, 1995; Dweck & Leggett, 1988). Endorsement of an *entity theory* means that attributes are perceived as relatively stable and unchangeable. Endorsement of an *incremental theory* means that attributes are viewed as malleable and open to influence. Theory and evidence suggest that adoption of an incremental view, relative to an entity view, is associated with more adaptive cognitive and behavioural consequences, including greater effort and persistence when confronted with adversity (Dweck et al., 1995).

The achievement goal framework posits that people differ in the extent to which they adopt various goals concerning their achievement behaviour and that these differences are associated with distinctive emotional, motivational, cognitive, and behavioural outcomes (e.g., Elliot, 2005; Pintrich, 2000). Elliot and McGregor (2001) conceptualized a "2×2 achievement goal framework" involving four goal orientations: The *mastery-approach* orientation involves striving to learn all there is to learn; the *mastery-avoidance* orientation involves avoiding failing to learn what there is to learn; the *performance-approach* orientation involves seeking to perform better than others; and the *performance-avoidance* orientation involves avoiding poor performance relative to others. Students may adopt multiple goal orientations simultaneously (Pintrich, 2000); as such, the degree to which each orientation is adopted is often the focus of measurement (e.g., Elliot & McGregor, 2001). Studies examining associations between goal orientation scores and indices of achievement-related functioning suggest that approach-oriented goals are associated with a more adaptive profile of functioning than avoidance-oriented goals (Moller & Elliot, 2006).

Dweck et al. (Dweck, 1999; Dweck et al., 1995; Dweck & Leggett, 1988) posited that entity beliefs promote the adoption of performance-related goals (i.e., goals concerned with demonstrating one's fixed level of competence) whereas incremental beliefs promote the adoption of mastery-approach goals (i.e., goals concerned with developing one's alterable level of competence). Only two studies have examined all four orientations in relation to entity and incremental theories. Elliot and McGregor (2001, Study 3) demonstrated that mastery-avoidance goals were positively associated with entity beliefs and negatively associated with incremental beliefs. In contrast, Cury, Elliot, Da Fonseca, and Moller (2006) showed that incremental beliefs correlated positively with mastery-approach and mastery-avoidance goal orientations whereas entity beliefs correlated positively with performance-approach and performance-avoidance goal orientations.

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## 2. Implicit theories, goal orientations, and procrastination

Given that approach-related goal orientations tend to be associated with adaptive self-regulatory processes whereas avoidance orientations tend to be associated with maladaptive self-regulatory processes (Moller & Elliot, 2006), procrastination should be associated more with the latter than the former. Howell and Watson (2007) revealed that the mastery-approach goal orientation correlated negatively with procrastination whereas the mastery-avoidance orientation correlated positively with procrastination. Performance-oriented goals were not associated with procrastination.

No research has examined relationships between implicit theories and procrastination. However, Rhodewalt (1994) and Ommundsen (2001) examined relationships among implicit theories of ability, goal orientations, and *self-handicapping*. While not equivalent to procrastination, meta-analyses have revealed self-handicapping to be a significant positive correlate of procrastination (Steel, 2007; van Eerde, 2003) and self-handicapping motivates some maladaptive postponement behaviour (e.g., Ferrari & Tice, 2000). Also, Dweck (1999) speculated on a self-handicapping process in which entity theorists defensively withdraw their effort to preserve attributions to ability in the face of success.

Rhodewalt (1994) had undergraduates complete measures corresponding to self-handicapping, entity and incremental beliefs, and mastery-approach and performance-approach goals. An entity view correlated positively with self-handicapping whereas an incremental view was not associated with self-handicapping. Mastery-approach goals correlated negatively with self-handicapping whereas performance-approach goals correlated positively with self-handicapping. Ommundsen (2001) had 9th graders complete measures of self-handicapping, implicit theories, and mastery-approach and performance-approach goals. Entity beliefs correlated positively with self-handicapping, whereas incremental beliefs related negatively to self-handicapping. A performance-approach goal orientation was unrelated to self-handicapping, whereas a mastery-approach orientation was negatively related to self-handicapping.

## 3. The current study

The present study examined associations between incremental and entity theories, the four goal orientations comprising the 2×2 achievement goal framework, and procrastination. The first purpose was to examine relations between implicit theories and procrastination and between goal orientation and procrastination. It was hypothesized that entity beliefs would predict higher procrastination and that incremental beliefs would predict lower procrastination. It was also hypothesized that a mastery-approach goal orientation would predict lower procrastination whereas a mastery-avoidance goal orientation would predict higher procrastination. The second purpose was to test whether achievement goal orientations mediate the relationship between implicit theories and procrastination.

## 4. Method

### 4.1. Participants

Participants were 397 introductory psychology students (mean age=20.6) who participated as part of a larger study concerning subjective well-being and academic functioning. Females comprised 72% of the sample.

### 4.2. Measures

The four items comprising the entity scale of Dweck's (1999) domain-general measure of implicit theories assessed the extent to which personal attributes are viewed as stable or enduring whereas the four items comprising the incremental scale assessed the extent to which attributes are seen to be malleable. All items are rated on a scale with endpoints 1 (*strongly agree*) and 6 (*strongly disagree*). Scale scores are calculated by summing across items. Elliot and McGregor (2001) reported alpha coefficients of .82 and .85 for the entity and incremental scales, respectively, and Dweck et al. (1995) established the discriminant validity of the scales (e.g., against measures of cognitive abilities and social desirability).

The Achievement Goal Questionnaire (Elliot & McGregor, 2001) is comprised of 12 items, with three items composing each of the four achievement goal orientations. Items are rated on scales ranging from 1 (*not at all true of me*) to 7 (*very true of me*). Scores for each goal orientation are calculated by averaging across the three items. Elliot and McGregor reported evidence attesting to the reliability of the mastery-approach ($\alpha$=.87), mastery-avoidance ($\alpha$=.89), performance-approach ($\alpha$=.92) and performance-avoidance ($\alpha$=.83) dimensional scales. They also validated the measure by showing, for example, that endorsement of avoidant goals positively correlated with measures of negative affect whereas endorsement of approach goals positively correlated with need for achievement.

The 16-item Procrastination Scale (Tuckman, 1991) measures the tendency to delay task initiation or completion, as well as tendencies toward indecisiveness and poor time management in the completion of tasks. Items are rated on 4-point scales with endpoints labeled 1 (*that's me for sure*) and 4 (*that's not me for sure*). In producing total scores, the rating scale was reversed prior to summing across the 16 items, so that higher scores indicated greater procrastination. Tuckman (1991) established the internal consistency of the Procrastination Scale ($\alpha$=.90) and reported significant associations between Procrastination Scale scores and a behavioural measure of procrastination.

## 5. Results

### 5.1. Descriptive statistics and inter-correlations

Descriptive statistics are reported in Table 1. In line with predictions, entity beliefs correlated positively with procrastination

**Table 1**
Descriptive statistics for all variables

| Variable | *M* | SD | Observed range | Possible range | Pearson Inter-correlations among variables | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1. Entity beliefs | 13.02 | 4.16 | 4.00–23.00 | 4.00–24.00 | (.71) | | | | | | |
| 2. Incremental beliefs | 15.35 | 4.08 | 4.00–24.00 | 4.00–24.00 | −.61*** | (.80) | | | | | |
| 3. Mastery-approach | 5.12 | 1.24 | 1.33–7.00 | 1.00–7.00 | −.11* | .09 | (.74) | | | | |
| 4. Mastery-avoidance | 4.24 | 1.55 | 1.00–7.00 | 1.00–7.00 | .14** | −.07 | .32*** | (.85) | | | |
| 5. Performance-approach | 3.90 | 1.77 | 1.00–7.00 | 1.00–7.00 | .10* | −.04 | .23*** | .10* | (.93) | | |
| 6. Performance-avoidance | 5.06 | 1.27 | 1.00–7.00 | 1.00–7.00 | .10* | −.12* | .15** | .18*** | .29*** | (.59) | |
| 7. Procrastination Scale | 40.49 | 8.60 | 18.00–63.00 | 16.00–64.00 | .15** | −.10* | −.36*** | .14** | −.15** | −.06 | (.92) |
| 8. Age | 20.60 | 2.91 | 17.00–31.00 | – | −.13* | .14** | .04 | −.03 | −.08 | −.14** | .05 |

*Note*. Sample size was 397 for all variables with the exception of the Procrastination Scale, for which it was 394. Values in parentheses are alpha coefficients. *$p$<.05. **$p$<.01. ***$p$<.001.