Research on psychological disengagement suggests that minority students cope with the threat of negative intellectual stereotypes by psychologically disengaging from test feedback (Major & Schmader, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Aronson & Inzlicht, 2004). Although this strategy might buffer self-esteem (Major et al., 1998), psychological disengagement is thought to have deleterious consequences for motivation and performance. To date, however, little is known about the mechanisms that underlie the process.

For example, if psychological disengagement is associated with distancing oneself from a stigmatized task, do psychologically disengaged minorities attend to negative feedback in an intellectually threatening environment and if so, how is it evaluated? To answer this question, we utilized a social neuroscience approach by examining the anterior cingulate cortex, a region of the brain widely implicated in error monitoring and feedback evaluative processes.

The Anterior Cingulate Cortex (ACC) and Feedback Evaluation:

The ACC is active when someone is engaged in a goal-directed behavior or a discrepancy occurs between personal expectations and an outcome (Dehaene, Posner, & Tucker, 1994; Hajcak, McDonald, & Simons, 2003). One neuronal index of anterior cingulate activity, known as feedback related negativity (FRN), has been implicated in the quick binary (good/bad) evaluation of feedback (Luu et al., 2003). In addition the P300 elicited in response to negative feedback has been utilized as a measure of attention paid to the feedback (Comerchero & Polich, 1999). These ERP could serve as on-line indices of the degree to which psychologically disengaged minorities attend to (P300) and evaluate (FRN) error feedback received in an intellectually threatening environment.

Rationale for Hypotheses:

Nussbaun and Steele (2007) have argued that stigmatized minorities might psychologically disengage during an intellectually threatening task as a means of reducing threat and maintaining persistence at the task. In addition, individuals are more likely to attribute their negative outcomes to situational variables than to internal ones (Malle, 2006). Together, this suggests that situational disengagement may facilitate greater task persistence and a need for stigmatized minorities to attend to negative feedback so that the failure implied can be attributed externally, e.g., to a biased IQ test.

Hypotheses and Results

Hypothesis 1: When minority participants are placed in an intellectually threatening environment, those who psychologically disengage will elicit smaller FRN amplitudes and possibly larger P300 amplitudes in response to negative feedback compared to engaged minorities.

Hypothesis 2: In the DIQ condition, psychologically disengaged minorities will make fewer errors than engaged minorities.

Hypothesis 3: In the DIQ condition, psychologically disengaged minorities will report feeling less anxiety and doubt.

Conclusions

Among psychologically disengaged minorities, the default response was a more neutral evaluation of error feedback as indexed by smaller FRN amplitudes. When the task was linked to intelligence however, psychologically disengaged minorities evaluated error feedback more negatively and equal to that of psychologically engaged minorities and Caucasians.

Compared to psychologically engaged minorities in the DIQ condition and psychologically disengaged minorities in the control condition, psychologically disengaged minorities in the DIQ condition paid more attention to negative feedback as indexed by larger P300 amplitudes. Despite this, psychologically disengaged minorities reported feeling less anxiety and doubt in the DIQ condition and tended to commit fewer errors as well.

These findings suggest that negative feedback received in intellectually threatening environments may be deflated by psychologically disengaged minorities not at the time of the initial evaluation of the feedback (FRN), but subsequently (P3) via an attrition demarcating process. These findings would be consistent with a hypothesis that a defensive response is utilized that takes the form of overt confidence and self-affirmation (e.g. affirming they are intelligent despite past disappointing feedback that may challenge that belief).

References