# Patterns of Processing Threat and Their Impact on Personal Well-Being

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## Patterns of Processing Threat and Their Impact on Personal Well-Being

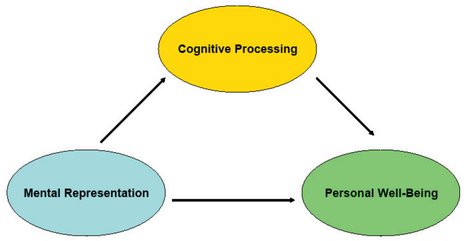
How do people process threatening information? What are the effects of the way people process threat on emotional well-being, physical health, and academic engagement? The purpose of the current study was to examine the relationships among patterns of cognitive processing, mental representations of self and others, and current functioning. Self and interpersonal schemata, as well as patterns of defensive cognitive processing, may have broad effects on individual outcomes such as emotionality, physically health, and behavioral engagement. Previous research has found that:

- Cognitive processing of threat reflecting an attentional bias to threat can lead to negative outcomes (Mogg, Bradley, Dixon, Fisher, Twelftree, & McWilliams, 2000).
- Negative self and interpersonal schemas can dramatically increase the likelihood of unfavorable results (Schroevers, Ranchor, &Sanderman, 2003).
- Patterns of personal defensiveness reflecting an avoidance of threat are related to individual differences in social desirability (Mogg et al., 2000).

Because of the potential for negative outcomes associated with negative schemata and defensive cognitive processing, it is advantageous to understand the ways in which these factors are related to one another. The current study examined different processing styles for personally salient and potentially threatening stimuli and their relationship to current adaptation.

We hypothesized that self and interpersonal schemata would determine how much attention people directed toward threatening stimuli. If cognitive resources were invested in vigilance to threat, we expected to find that this defensive style of processing would increase negative outcome variables in the domains of emotional, health, and behavior. As a result, we expected that cognitive processing would mediate the effects of self and interpersonal schemata on current functioning and personal well-being. See Figure 1 for our proposed model.

**Figure 1.** *Proposed Model*




## Methods

*Participants*

Two hundred and seventeen undergraduate psychology students (70 male, 144 female) from the State University of New York at Geneseo participated in the present study. The mean age of the participants was 19.0 years (range 17 to 45). Most were freshman (49.8%). A majority of the sample self identified as Caucasian (82.0%).

*Measures*

**Self Schema.** A modified version of Rosenberg's Self-Esteem Inventory was used.

**Interpersonal Schema.** The social support scale from the Protective Factors Index assessed the presence of caring individuals in the participant's life. Bartholomew and Horowitz's (1991) assessment scale was used to assess attachment styles with a forced choice measure composed of four descriptions

**Cognitive Processing.** To assess the extent to which subjects attend to potentially threatening stimuli, we used a modified version of the *Stroop Task*. Participants were presented with a series of potentially threatening and non-threatening words in different colored fonts on a computer screen. They were asked to recognize the color of the word and respond by pressing a button. Increased latency in responding would indicate attention to the content of the stimulud as opposed to its color. After all of the stimuli were presented we employed an *incidental recall task*. Differential rates of recall for the different stimulus categories would indicate different levels of stimulus processing. *Bias scores* for participants' reaction time (RT) and recall were created.

**Social Desirability.** The Marlow-Crowne Social Desirability Scale – short form assessed the degree to which participants conceal negative qualities in an attempt to appear more socially pleasing.

**Emotional Well-Being.** The Positive and Negative Affect Schedule (PANAS) contains two 10-item mood scales.

**Physical Health.** A modified version of the Short Form Health Survey was used to assess participants' current level of physical health.

**Academic Performance.** We constructed the Academic Achievement Evaluation to assess participants' time commitment to class, jobs, and extracurricular activities.

## Results

### *Effects of Gender and Academic Year*

Preliminary analyses were conducted to assess possible covariates of the study variables. Gender and academic year had a significant effect on cognitive processing and adaptation. As a result, we controlled for gender and academic year in subsequent analyses.

### *Effects of Mental Representation and Patterns of Cognitive Processing*

We conducted a series of univariate analyses to determine the unique effects of self esteem, social support and relationship style. Key: (+) Positive correlation; (–) Negative correlation

**Self Esteem** significantly predicted:
- Positive affect (+)
- Negative affect (–)
- General health perception (+)
- Academic engagement (+)
- Job Involvement (–) … There also was a significant Self Esteem by Academic Year interaction effect.

**Social Support** significantly predicted:
- Positive affect (+)
- Negative affect (–)
- Physical symptoms (–)
- General health perception (+)
- Academic engagement (+)
- Job Involvement (–) … There also was a significant Social Support by Academic Year interaction effect.

**Relationship style** significantly predicted:
- *Positive Affect* … *secure* relationship styles had the *highest positive affect* while *preoccupied* relationship styles had the *lowest positive affect*
- *Negative Affect* … *secure* relationship styles had the *lowest negative affect* while *fearful* relationship styles had the *highest negative affect*
- *Academic Engagement* … *dismissing* relationship styles were *most engaged in school* while *preoccupied* relationship styles were the *least involved*
- *Over-Involvement* … *dismissing* relationship styles were the *most over-involved* while *preoccupied* relationship styles were the *least involved*
- *Job Involvement* … *dismissing* and *fearful* relationship styles were most involved in jobs
  - There was a significant Relationship Style by Academic Year interaction effect.

### Patterns of Cognitive Processing

Patterns of cognitive processing were identified through cluster analysis in which RT bias scores, recall bias scores, and social desirability scores were entered as the variables. This approach resulted in the identification of four different groupings of subjects whose profiles across the 7 cluster variables were similar to each other, and different from members of the other groups (see Figure 2). The specific profiles suggest that there are different patterns of processing threatening information that help to differentiate people.

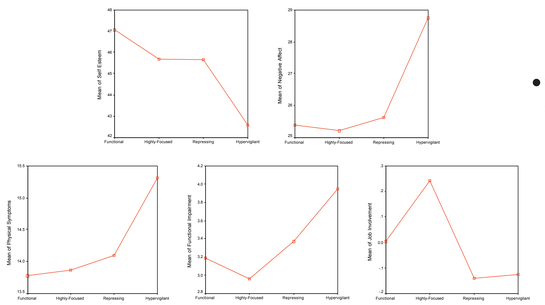
Subsequently, we conducted a series of univariate ANOVAs to assess the unique effects of patterns of cognitive processing on personal well-being. Cognitive processing of potentially threatening information was significantly related to **self esteem** [F(3) = 2.692, p=.048]; marginally related to **negative affect** [F(3) = 2.305, p=.078]; marginally related to **physical health** in terms of both *physical symptoms* and *functional impairment* [F(3) = 2.546, p=.058 and F(3) = 2.60, p=.54]; and significantly related to **job involvement** [F(3) = 2.976, p=.033] (see Figure 3).

**Figure 2.** *Patterns of Cognitive Processing*


### *Testing Our Model*

We predicted that patterns of cognitive processing would mediate the effects of self and interpersonal schemata on individual functioning. However, regression analyses revealed that the criteria for mediation were not met for any of the indicators of personal well-being. Thus, the data were not consistent with our proposed model (see Figure 1).

**Figure 3.** *Effects of Cognitive Processing*

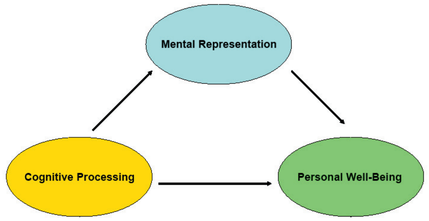


### *Testing an Alternate Model*

A series of univariate ANOVAs were conducted to determine whether patterns of cognitive processing served a moderating function instead. The moderation analysis revealed a *significant interaction* between *social support* and cognitive processing on *job involvement* [F (3) = 2.592, p = 0.055]. An *interaction* between *relationship style* and *cognitive processing* on *job involvement* was also revealed [F(9) = 2.417, p = 0.014]. No other significant moderating effects were revealed.

In addition, a second series of regressions were completed to assess whether the data in the current study were more consistent with a different model (see Figure 4) in which *self schemata* mediated the effects of *cognitive processing* on personal well-being. Regression analyses revealed that the *relationship between* ***cognitive processing*** *and* the dependent variables of ***negative affect*** and ***physical symptoms*** was reduced to a non-significant effect when self schemata were taken into account, *indicating a full mediation effect*. The *relationship between* ***cognitive processing*** and ***functional impairment*** and ***academic engagement*** was slightly reduced when self schemata were entered into the equation, *indicating partial mediation*.

**Figure 4.** *Alternative Model*




## Discussion

- **Self and interpersonal schemata were associated with indicators of personal well-being.**
  - Specifically, **self esteem** and **social support** predicted *emotional well-being*, *physical health*, and *behavioral engagement*. As expected, higher levels of self esteem and social support were associated with healthy adaptation.
  - **Relationship style** predicted *emotional well-being* and *behavioral engagement*. **Secure** relationships were associated with *emotional well-being*. **Preoccupied** relationship styles were associated with *lower levels of behavioral engagement*, where as **dismissing** styles were associated with *higher levels*.
- **Cluster analyses revealed four distinct patterns of cognitive processing.**
  - **Functional** processing was associated with the **healthiest outcomes** as indicated by relatively *higher self esteem*, *lower negative emotion*, and *fewer problems with physical health*.
  - Conversely, **hypervigilant processing** was associated with **poor adaptation** as indicated by relatively *lower self esteem*, *higher negative emotion*, *more problems with physical health*, and *lower levels of behavioral engagement*.
  - These findings suggest that a *quick reaction time* to salient and potentially threatening stimuli is *associated with negative adaptation* only when the stimuli *have been processed and retained*.
- Our proposed model was not consistent with the data. Instead the **data suggested a different pattern of association between mental representation and cognitive processing in predicting personal well-being**.
  - Specifically, *self esteem* mediated the effect of *cognitive processing* on *negative affect*, *physical symptoms*, *functional impairment*, and *academic engagement*.
- **These findings suggest** that individual differences in the way people process salient and potentially threatening stimuli are associated with personal well-being across a number of important domains, and that there may be a cost associated with some patterns of processing. The particular effects of cognitive processing styles may be mediated by self schemata.
- **Further research** should test the validity of the proposed model and examine techniques to alter maladaptive cognitive processing styles.