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Developing a Word Fragment Completion Task for Measuring Trait Aggression

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Developing a Word Fragment Completion Task for Measuring Trait Aggression

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By

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY Steven Khazon ENTITLED DEVELOPING A WORD FRAGMENT COMPLETION TASK FOR MEASURING TRAIT AGGRESION BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science.

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ABSTRACT

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The goal of this paper was to develop a test that uses the implicit processing style to assess aggression. This paper begins by reviewing current aggression theories and how aggression is assessed. Next it discusses the implicit and explicit processing styles and how scholars have used these methods of information processing to create psychological assessments. Afterwards, it presents a new indirect test of trait aggression that is based on the word fragment completion task and attempts to evaluate its validity in three experiments. In Study 1, psychometric methods are used to derive a 9-item trait aggression scale and initial support for the scale is provided. In Study 2, an attempt is made to provide additional support for the new scale, this time using an online format. No support is found for the validity of the new scale. In Study 3, the psychometric properties of the new scale are reevaluated, reverting to a paper-and-pencil format. Weak support is found for the validity of the measure. Lastly, finding and implications are discussed.

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Introduction

People express aggression in many different ways and through a wide array of outlets, from large scale tragedies such as war and mass murder to smaller more commonplace occurrences such as bullying and vandalism. In the workplace, organizational scholars have linked aggression to numerous organizational outcomes, including job dissatisfaction, intention to quit, abusive supervision, and counterproductive work behaviors (e.g., Bing et al., 2007; Budd, Arvey, & Lawless, 1996; Hershcovis et al., 2007, Mitchell & Ambrose, 2007). These behaviors cost companies billions of dollars annually (Bennett & Robinson, 2000), making predicting and stopping them important to businesses. Historically, researchers have assessed individual differences in aggression with instruments that call upon the respondents to consciously evaluate their psychological states or previous behaviors (see Buss and Perry, 1992 for an example). Researchers have called these types of instruments direct or explicit tests (Bergman, McIntyre, & James, 2004; Johnson & Steinman, 2009). Measuring individual differences using explicit tests has two problems. First, measuring sensitive topics such as aggression using explicit tests has been controversial because respondents might distort their answers (e.g., Morgeson et al., 2007), especially in situations where an important outcome is associated with the results of the test (e.g., selection decisions; Robie, Brown, & Beaty, 2007). Second, complex psychological phenomena, such as aggression, have both conscious and unconscious components that might not be captured by explicit tests alone (Bergman, McIntyre, & James, 2004; Johnson & Steinman, 2009; Vargas, Sekaquaptewa, & von Hippel, 2007).

In this paper, we attempt to address these concerns through developing an indirect measure of aggression that utilizes the implicit processing style. We will discuss the current

theories of how aggressive thoughts and actions occur and how researchers have measured aggression in the past. Next, we will discuss explicit and implicit processing theories and how researchers have used implicit processing theory to create indirect. Finally, we describe three studies in which we attempt to validate an indirect test of aggression.

Defining Aggression

Aggression research is an incredibly broad field with numerous definitions. "Aggression" itself is not a scientific term. Instead it is taken from everyday English to describe behaviors that all have in common the intention to harm others (Geen, 1998). Researchers usually define human aggression as any behavior that is intended to cause immediate harm towards an individual who is motivated to avoid such treatment (Anderson & Bushman, 2002; Baron & Richardson, 1994). Although there has been some controversy as to whether aggression remains stable across time (Geen, 1998), researchers have provided considerable evidence for the stability of aggression (e.g., Deluty, 1985; Olweus 1979). The general predisposition to engage in aggressive behaviors is called trait aggression (Bergman, McIntyre, James, 2004) or trait anger (e.g., Douglas & Martinko, 2001, Hershcovis et al., 2007). Individuals who are high in trait aggression are more likely than others to experience aggressive thoughts and emotions, as well as more likely to engage in aggressive actions.

Theories of Aggression

There have been many attempts to formulate theories that explain aggressive behavior. One example is the Cognitive Neoassociation Theory (Berkowitz, 1998; Geen, 1998), which hypothesizes that aggravating events such as physical discomfort, pain, or unpleasant odors create negative affect which in turn triggers a primitive fight or flight response. Flight is

associated with feelings of fear, whereas fight is associated with feelings of anger, thus resulting in aggressive behavior. For example, a child who scrapes his or her knee after falling off a bicycle will feel negative affect caused by the pain. This might make the child feel more fearful of whatever action he or she was doing with the bicycle and experience a rudimentary feeling of anger, which may result in aggressive behavior. Scholars have also attempted to explain aggression using Social Learning Theory (Bandura, 2001; Geen, 1998), which postulates that aggression is a learned behavior that individuals internalize either by direct experience or by observing others. Another attempt to describe aggression is Script Theory (Geen, 1998; Huesmann, 1998). According to this theory, scripts are highly associated mental concepts, which become linked through repetition. This increases the chance that when one mental concept is activated, another concept that is linked to it by the script will be activated as well (Alberson, 1981). A child who watches a lot of television programs that feature daily problems solved with aggressive actions creates a script in which a daily problem will trigger an aggressive response. After many insistences of witnessing this link, the child will have an easily accessible script that can be generalized over many situations. Though these theories of aggression attempt to explain different reasons people engage in aggressive behavior, there is a great degree of overlap between them. This has led to the development of a unifying framework called the General Aggression Model (Anderson & Bushman, 2002).

The General Aggression Model put forward by Anderson and Bushman (2002) is an episodic model that focuses on the "person in the situation." Each "episode" represents one cycle of an ongoing social interaction, for example talking to a coworker or being bumped by a stranger while waiting in line. When a person enters an episode, whether they will respond

aggressively is determined by considering their personal and situational factors, which are called "inputs" in the General Aggression Model. Personal factors include the individual's personality traits such as hostile attribution biases, trait anger, gender, attitudes, and scripts they have acquired. Situational factors include provocations, frustrations, and aggravating stimuli such as pain or discomfort. This is consistent with the interactionalist view that all behavior is the function of individual differences within people and their environment (Mischel, 1977).

These inputs affect behavior by influencing internal states called "routes." The General Aggression Theory has three routes through which inputs can influence behavior: cognitions, affect, and arousal. Some input variables influence behavior through the cognitions route, which takes the form of aggressive thoughts and scripts. These cognitions increase the accessibility of aggressive concepts in memory. When aggressive thoughts and scripts are activated often, they become chronically accessible (Bargh, Lombardi, & Higgins, 1988). Other input variables impact aggressive behavior by directly influencing mood and emotion. As mentioned earlier, discomfort is an example of an input variable that directly impacts affect and makes individuals more prone towards aggression (Berkowitz, 1993). The last route category that inputs can influence is arousal. Individuals are prone to misattributing physiological (e.g., exercise) and emotional (e.g., excitement) arousal from one source to another if the two events occur within a short amount of time (Zillmann, 1988). When arousal from a source unrelated to aggression, such as watching an exciting movie, occurs shortly before a form of arousal related to aggression, such as someone cutting in the line for concessions, the arousal due to the aggressive stimulus will be compounded. After the personal and situational inputs pass through one or several of the routes, they elicit a decision making process that leads to either an aggressive or

non-aggressive outcome. Trait aggression influences this process by predisposing individuals towards reacting in a way that results in greater aggressive behavior along each route. For example, people who are high in trait aggression might be more prone to misinterpret arousal for anger or more likely to allow negative affect to impact their level of state aggression.

Counterproductive Work Behaviors

Counterproductive work behaviors are voluntary behaviors that employees engage in that violate the norms of an organization and consequently threaten the well-being of the organization, its members, or both (Bennett & Robinson, 1995). Researchers have also called these behaviors workplace deviance (e.g., Bennett & Robinson, 1995; Bennett & Robinson, 2000). Researchers usually group counterproductive work behaviors into two categories: organizational deviance and interpersonal deviance (Bennett & Robinson, 2000). Organizational deviance refers to employee behaviors that are directed against the organization itself. These include stealing money or equipment, sabotage, and intentionally working slowly. On the other hand, interpersonal deviance refers to behaviors that are directed against individual members within an organization. These behaviors include harassing, bullying, or spreading rumors about coworkers.

Counterproductive work behaviors are a special case of aggressive actions discussed above, in that they are essentially aggressive behaviors in a work context. The reasons for why employees engage in these behaviors are likely explained at least in part by the theories described above.

Now that we have discussed theories describing aggression, we will turn our attention to how researchers have measured it.

Assessment of Aggression

Historically, when organizational scientists and practitioners have wanted to assess aggression or related constructs such as trait anger, they have turned to self-report measures (Bergman, McIntyre, & James, 2004; Johnson & Steinman, 2009). In these tests, participants consciously recall how they feel or behave. A few examples of these are the Aggression Questionnaire (Buss & Perry, 1992), the California Personality Inventory (Gough, 1956), and the State-Trait Anger Expression Inventory (Spielberger, 1996).

A common criticism that is leveled against self-report measures is that they are susceptible to being manipulated by test-takers (e.g., Bergman, McIntyre, & James, 2004; Mueller-Hanson, Heggestad, & Thornton, 2003; Robie, Brown, & Beaty, 2007). Measures related to sensitive issues, such as aggression and counterproductive behavior might be especially vulnerable to faking motivated by the respondent's desire to be seen in a favorable way (e.g., Bergman, McIntyre, & James, 2004). Robie, Brown, and Beaty (2007) examined this problem using verbal protocol analysis to explore how respondents think through questions on a personality test. The researchers found that a number of participants actively distorted their responses, and that individuals generally fell into three different faking categories: honest responders, slight fakers, and extreme fakers (Robie, Brown, & Beaty, 2007). Particularly noteworthy was that this research was conducted in a laboratory setting, where participants are the least likely to fake (Robie et al., 2007). During a follow-up, several participants who did not distort their answers reported that they would have had they been applying for a real job. In other words, had the stakes been higher, as in a real job applicant situation, there would have likely been more distortion.

Faking is a problem for researchers and practitioners because it impacts the validity of explicit tests. Researchers have suggested that faking disrupts the rank order of the distribution of scores, such that individuals who would have been in 7th place had they answered honestly would be bumped up to 3rd or 2nd place if they distorted their answers (Mueller-Hanson, Heggestad, & Thornton, 2003). In situations where selection ratios are small, such as in a real hiring situation, these errors have a high impact on validity. This has led some scholars to believe that faking is a major cause of low validity coefficients that are frequently seen in personality tests (e.g., Morgeson, Campion, Dipboye, Hollenbeck, Murphy, & Schmitt, 2007). Aggression measures might be particularly vulnerable to this problem because of the social sensitivity of the construct. Respondents might not be willing to admit to researchers that they experience aggressive thoughts or behave in an aggressive manner, or they might not have the wherewithal to recognize their own aggressiveness. Morgeson et al. (2007) acknowledge that while personality is a valuable tool for predicting workplace outcomes, researchers should seek alternatives to self-report measures.

While the ability of test-takers to manipulate self-report measures is widely recognized by researchers, there are many scholars who believe that personality measures are not greatly hindered by self-report measures. Most notably, Ones and her colleagues (2007) argue that faking does not greatly impact the criterion validity of personality tests.

Implicit and Explicit Processes and Measures

In response to the ease with which the widely used self-report measures can be faked, researchers have begun developing more covert tests (e.g., Greenwald, McGhee, & Schwartz, 1998; James et al., 2005; Johnson, Tolentino, Rodopman, & Cho, 2010). Collectively these tests

are referred to as indirect or implicit measures, whereas self-report tests are referred to as direct or explicit measures. Implicit and explicit tests use different cognitive processing styles to assess a given construct (Johnson & Steinman, 2009). Indeed, researchers have found that implicit and explicit measures of the same construct are often weakly related to each other (Hoffman et al., 2005).

Explicit measures rely upon a processing style that requires a significant amount of attention and motivation to function correctly (Johnson & Steinman, 2009). When a test taker attempts to complete a self-report test, he or she must actively recall information. This information is represented symbolically and interconnected with semantic relationships. These are then combined into propositions ("I am an aggressive person") for the test taker to evaluate. The advantages of explicit processing are that experiences can be encoded into memory after just one occurrence and that these occurrences can be combined into propositions in new ways independent of past experiences. Compared with implicit processing, explicit processing is slow acting. It takes a long time and consumes a lot of cognitive resources to process information in this way (Johnson & Steinman, 2009).

Implicit processing on the other hand requires much less conscious attention (Johnson & Steinman, 2009). Instead implicit processing occurs automatically, outside of awareness, and without effort. Researchers have theorized that this processing style functions through an interconnected web of neuron-like units, the strength of whose association is based upon similarity, contiguity, and frequency (Johnson & Steinman, 2009). Implicit processing is much faster than its explicit counterpart. Associations can be activated in milliseconds as opposed to

seconds or minutes. On the other hand, it can take many experiences to develop the neuron-like web of associations.

Even though explicit and implicit processing are qualitatively distinct mental processes, there are no existing measure that draw upon only one of these processes exclusively. All tests use a mix of both implicit and explicit processes, though they may draw more heavily upon one over another (De Houwer & Moors, 2007; Johnson & Steinman, 2009). For example, a self-report test of aggression might lean heavily on explicit processing, since respondents have to consciously evaluate propositions such as "I have trouble controlling my temper." This test also has unconscious components such the accessibility of aggressive concepts and affect.

There has been some disagreement among researchers about exactly what it takes for a test to qualify as an implicit measure. The most open distinction between implicit and explicit tests is that the former is less transparent and susceptible to faking as the later (Wittenberg & Schwarz, 2007). De Houwer and Moors (2007) put forward a more conservative conceptualization, defining implicit measures as "measurement outcomes that reflect the to-be-measured construct by virtue of processes that are uncontrolled, unintentional, goal independent, purely stimulus driven, autonomous, unconscious, efficient, and fast" (pp. 188-189). There are few, if any, measures that meet all of the qualities set down in this more conservative definition.

Implicit Measures of Aggression

To date, the only implicit test that is designed to measure trait aggression is the conditional reasoning test, developed by James et al. (2005). The conditional reasoning test functions on the premise that aggression prone individuals use a script called the hostile attribution bias to enhance the logical appeal of their desire to aggress. Individuals who use the

hostile attribution bias are more prone to interpret non-aggressive actions as being aggressive (Bergman, McIntyre, & James, 2004, James et al., 2005). As an example, an employee who has the hostile attribution bias would interpret the constructive comments of a supervisor as intending to humiliate or harm him or her, when the actual intent of the supervisor was to be helpful. The conditional reasoning test takes advantages of these implicit biases in the reasoning of aggressive individuals through carefully constructed questions that on the surface appear to test inductive reasoning, indeed respondents are led to believe that they are taking an intelligence test. In reality these questions are designed to assess whether the respondent uses justification mechanisms to increase the logical appeal of aggressive actions. Individuals who do not use the hostile attribution bias do not find the aggressive answers logically appealing (James et al., 2005). Thus, the conditional reasoning test is able to identify individuals prone towards aggressive behavior. Though the conditional reasoning test is an indirect or implicit test in the sense that the respondents do not know what is being measured, it leans more heavily on explicit processing than other indirect measures. Respondents must consciously evaluate the logical appeal of each statement. In this way, the conditional reasoning test meets the unintentional, goal independent, purely stimulus driven, and autonomous components of the definition of implicit measures put forward by De Houwer and Moors (2007), while not quite being efficient and fast.

The evidence for the criterion validity of the conditional reasoning test has been somewhat mixed. As part of the development and validation of their new scale, James et al. (2005) provided information about 11 studies correlating the conditional reasoning test with different operationalizations of counterproductive work behaviors and job performance. These

showed moderate to strong relationships between the conditional reasoning test and a variety of organizational outcomes and aggressive behaviors. A few examples are relationships between the conditional reasoning test and supervisory performance ratings of police officers (r = -.49, p < .05, n = 140), class absences for undergraduates (r = .37, p < .05, n = 188), and theft by undergraduates in an experiment (r = .64, p < .05, n = 95; James et al., 2005). The initial findings were tempered somewhat by mixed subsequent research (e.g., Bing et al., 2007), which was summarized in a meta-analysis by Berry, Sackett, and Tobares (2010). Using a combined sample about twice the size of James et al., (2005; N = 3,237 k = 17), Berry and colleagues concluded that the average corrected correlation between the conditional reasoning test and counterproductive work behavior was about r = .26, and the correlation with job performance was r = .14. Although these results showed that the conditional reasoning test still predicted organizational outcomes, the measure did not have an advantage over easily developed and widely available explicit tests (Berry, Sackett, & Tobares, 2010; Berry, Sackett, & Wiemann, 2007).

In response to the criticisms of the current explicit and implicit aggression measures, we propose a different way to measure trait aggression that we believe will address the problems of previous methods. The method that we will apply to the measurement of aggression is the word fragment completion task. More specifically, this method captures the "efficient" and "fast" components of the De Houwer and Moors definition. The word fragment completion task consists of a number of incomplete words (e.g., "S T _ _") that respondents can endorse with either with a target word related to the construct being measured (e.g., "STAB") or an unrelated non-target word (e.g., "STOP"). In order to avoid conscious deliberation that might contaminate

the implicit processing style of the measure, the test instructions encourage respondents to answer each item as quickly as they can and skip any that do not readily come to mind. In order to account for potential contamination due to cognitive ability, the ratio of target words the participants endorses to that of the total words endorsed is used to infer the level of construct activation in memory (Bassili & Smith, 1986; Johnson & Steinman, 2009).

Researchers have used this method for many decades and have shown that it is valid for assessing constructs such as trait attribution, affect, and promotion focus at the implicit level (e.g., Bassili & Smith, 1986; Johnson et al, 2010; Johnson & Steinman, 2009; Vargas, Sekaquaptewa, & von Hippel, 2007). Throughout most of its history, the word fragment completion task has been used as a state-level measure. That is, researchers have used it to assess temporary changes in a given personality construct, rather than a stable and long term standing on that construct. In the domain of aggression research, the word fragment completion task has been used as a measure of state aggression. For example Anderson, Carnagey, and Eubanks (2003) used a word fragment task to examine the changes in state aggression of college students who were exposed to music containing different degrees of violent lyrics. In the current study we will attempt to design a word fragment completion task for predicting state aggression. Although this method has been previously used to evaluate state aggression, the word fragment task has successfully been used to measure traits (Johnson, 2010), such as trait positive and negative affectivity. It is likely that this method captures both state and trait levels of a construct. We theorize that the word completion task will predict aggression either by assessing the trait aggression construct directly at the implicit level or by measuring the ease with which

the implicit elements of the General Aggression Model, such as scripts, are activated and thereby infer their accessibility (Anderson & Bushman, 2002).

Researchers have suggested that implicit and explicit measures might tap into different constructs, and so will have a weak to moderate relationship with each other (e.g., Bing et al., 2007). This view fits well with the General Aggression Model, in which aggression is influenced through both conscious and unconscious routes. In contrast other scholars argue that implicit and explicit measures offer different paths for assessing the same construct, and thus should have moderate correlations (e.g., Johnson et al., 2010, Vargas, Sekaquaptewa, & von Hippel, 2007). Some previous researchers have found that the word fragment completion task has moderately strong relationships with the explicit measures of the same construct (e.g., Johnson et al., 2010). This seeming contradiction might be explained by the degree to which respondents tap into implicit processes while taking the test. For example Hofman and colleagues (2005) found that implicit and explicit measures are more related to each other when participants respond to explicit tests in a spontaneous way, thus relying more on implicit processes.

Current Study

One of the ways that trait aggression manifests itself is through deviant behaviors that people direct towards friends, family, their coworkers, or their workplace. Deviant behaviors directed towards coworkers or an organization is called counterproductive work behaviors. As we discussed previously, counterproductive behaviors might be called a special case of aggressive behavior because it involves behaving in an aggressive manner in the workplace.

Following this line of reasoning, we expect measures of aggression to be positively related with counterproductive behaviors.

Hypothesis 1a: The implicit measures of aggression will be positively correlated with counterproductive behaviors.

Hypothesis 1b: The explicit measures of aggression will be positively correlated with counterproductive behaviors.

As discussed above, researchers tend to adhere to one of two patterns of thinking with regard to how implicit and explicit measures should be related. Some researchers believe that direct and indirect tests should have a weak relationship, if indeed they have any relationship at all, because they represent different constructs (e.g., Bing et al., 2007). Other researchers postulate that implicit and explicit tests measure the same construct and should have moderate correlations since both instruments are essentially measuring the same phenomenon in a slightly different way and because no measure purely draws upon a single cognitive processing style (e.g., Johnson & Steinman, 2009). Research findings have been split, though researchers have found that direct and indirect measures tend to be more related when respondents spend less time deliberating on explicit tests (Hofman et al. 2005).

In this paper, we will focus on the arguments for the existence of a relationship between explicit and implicit tests. Several recent studies using the word fragment completion task, which is the focus of this paper, have found the word fragment task has moderate correlations with explicit measures of the same construct (e.g., Johnson et al., 2010). Additionally, a correlation between a new implicit test and an established explicit test provides convergent

validity for the new measure. Following this line of reasoning, we predict that the implicit and explicit measures of aggression will be positively correlated.

Hypothesis 1c: The implicit and explicit measures of aggression will be positively correlated.

As discussed above, implicit measures have two advantages over explicit measures of the same construct. First, the purpose of implicit measures is hidden from the respondents. This decreases the validity-related problems caused by socially favorable responding (Bergman, McIntyre, & James, 2004; Johnson & Steinman, 2009). Second, the implicit and explicit processing styles have both independent and interactive effects on behavior (Johnson & Steinman, 2009), which makes finding unique contributions for both more likely. The General Aggression model supports this idea. In this model, the aggressive behavior originates from both conscious evaluation of the situation and unconscious factors, such as scripts (Bassili & Smith, 1986; Steinman, 2009; Vargas, Sekaquaptewa, & von Hippel, 2007). Following this line of reasoning, we anticipate that the implicit measures of aggression will explain unique variance in counterproductive work behavior over explicit tests of the same construct.

Hypothesis 2a: A word fragment completion task will explain variance in counterproductive behaviors over and above explicit test of aggression.

Hypothesis 2b: A conditional reasoning test will explain variance in counterproductive behaviors over and above explicit test of aggression.

Study 1

The aim of the first study was to develop an initial set of items for the word fragment completion task for measuring aggression. We intended to accomplish this by presenting participants with a long list of word fragments and cull them down into a single scale by using various psychometric methods including correlations with criteria, inter-item reliability, and exploratory factor analysis. The secondary purpose of this study was to determine the validity of the deviant behavior towards friends and family scales. The conditional reasoning test is not included in this study due to space limitations.

Method

Participants and Procedure

The participants in this study consist of 224 undergraduate students from a large Midwestern university. Seventy percent of the participants in this study were female (n = 156) and sixty-seven percent (n = 150) reported that they were employed with an average tenure of 21 months. The average age of the participants was 20.86 years. The participants completed a survey containing a word fragment completion task for aggression, two explicit tests for aggression, two counter-productivity measures, and a brief demographic survey. Since the word fragment completion task is vulnerable to contamination from explicit aggression questions, participants will take it first followed by the explicit measures. We compensated all participants with course credit for involvement.

Measures

Implicit aggression. We assessed implicit aggression using a 39-item word fragment completion task. We developed items one through thirty-two. Items thirty-two through thirty-

nine were borrowed from Anderson, Carnagey, and Eubanks (2003). In this task, participants must complete a set of incomplete words as quickly as possible, skipping any items for which they cannot immediately think of a word. An example item is "S _ ab," where participants can either complete the fragment with an aggressive word (e.g., "Stab") or a non-aggressive word (e.g., "Slab"). See Appendix A for a complete list of items. Two raters scored the responses independently. The raters resolved any discrepancies through discussion and consensus. Following the recommendations of Johnson, Tan, and Chang (2011) we computed the aggression scores by dividing the total number of word fragments endorsed with an aggressive word by the total number of word fragments the participant endorsed. This technique accounts for the contaminating effects of intelligence, wherein some participants might receive a higher aggression score simply because they endorsed more of the word fragments. Higher scores indicated a higher level of aggression

Explicit aggression. We used two measures of explicit aggression in this study: the aggression questionnaire developed by Buss and Perry (1992) and the aggression scale from the International Personality Item Pool (Goldberg et al., 2006).

Aggression questionnaire. We assessed explicit aggression using a 31-item self-report test developed by Buss and Perry (1992). Respondents reported the frequency of their aggressive thoughts and behaviors on a 7-point scale, ranging from "strongly disagree" to "strongly agree." This measure had four subscales: physical aggression (e.g., "I have become so mad that I have broken things"), verbal aggression (e.g., "I often find myself disagreeing with people"), anger (e.g., "when frustrated, I let my irritation show"), and hostility (e.g., "I am suspicious of overly friendly strangers"). These subscales have alpha reliabilities of .85, .72, .83,

and .77 for physical aggression, verbal aggression, anger, and hostility respectively (Buss & Perry, 1992). See Appendix B for a complete list of items. We computed aggression scores using the mean of each subscale. Higher scores indicate a higher level of aggression. Research has shown that all of the subscales for this measure correlate with peer ratings of aggression from .24, for the Hostility subscale, to .45, for the Physical Aggression Subscale (Buss & Perry, 1992).

IPIP NEO Anger. We also assessed explicit aggression with a scale from the International Personality Item Pool (IPIP; Goldberg et al., 2006; International Personality Item Pool, 2008). The test consists of 10 items in which participants rate their aggressive behavior on a 7-point scale, ranging from "strongly disagree" to "strongly agree." Example items include "I get angry easily" and "I am often in a bad mood." This scale has an alpha reliability of .88. See Appendix C for a complete list of items.

Counterproductive Behaviors. We used two measures of counterproductive behavior in this study: the workplace deviance scale created by Bennett and Robinson (2000) and an aggression towards friends and family scale adapted from Bennett and Robinson (2000).

Counterproductive work behaviors. We assessed counter productive work behaviors using a workplace deviance scale created by Bennett and Robinson (2000). This measure consists of two subscales: organizational deviance (e.g., "intentionally worked slower than you could have worked") and interpersonal deviance (e.g., "said something hurtful to someone at work"). There are 12 organizational deviance items and 7 interpersonal deviance items, which have alpha reliabilities of .81 and .78 respectively. Respondents completed the items by rating how often they have engaged in deviant behaviors in the past year on a 6-point scale, ranging from "never" to "daily." The creators of the measure cite several studies that demonstrate the

convergent validity of their scale. This measure correlates with Machiavellianism (r = .39 for interpersonal deviance, r = .26 for organizational deviance) and antagonistic work behavior (r = .62 for interpersonal deviance, r = .42 for organizational deviance; Bennett & Robinson, 2000). See Appendix D for a complete list of items.

Aggression towards friends and family. Interpersonal deviance towards family and friends is measured on a 14-item scale adapted from Bennett and Robinson's interpersonal deviance subscale by changing the phrase "at work" in each item to refer to friends or family members. For each item, respondents must rate how often they have engaged in deviant behaviors in the past year on a 6-point scale, ranging from "never" to "daily." Sample items include "made rude comments to a friend" and "cursed at a family member." See Appendix E for a complete list of items.

Analyses and Results

The first step in creating the new scale was to combine all of the items that correlated with the criteria. We ran bivariate correlations on the 39 word fragment items to come up with a combination of items that yielded the highest correlations with the criteria. We erred on the side of inclusiveness. We pooled any items that correlated with any of the criterion measures. This method gave us 16 items that we could analyze further (Appendix F).

Following the recommendations of Johnson, Tan, and Chang (2011) for developing word fragment tasks for measuring attitudes, we conducted a reliability analysis of the 16 items by calculating their Cronbach's alpha. Although Johnson et al. (2011) do not recommend using internal consistency to evaluate the reliability of word fragment tasks; they suggest using it during scale development in order to eliminate items that have negative relationships with each

other. My analysis revealed 3 items that had negative correlations with the rest (items 22, 30, and 32). After removing these items the scale was reduced to 13 items and it had an internal consistency of .47.

Lastly, we conducted an exploratory factor analysis (EFA) on the remaining items. Johnson et al. (2011) recommends erring on the side of leniency and removing any items that have a loading with the first factor that is weaker than .25. The EFA revealed four items that had poor loadings with the first factor (items 3, 17, 20, 27). The results of the EFA are depicted in Appendix G. Removing these items left a nine-item scale that had an alpha reliability of .50. These items all had moderately strong loadings on the first factor, although it only explained about 20% of the variance. Several of the items also had moderately strong loadings onto a second and third factor.

After we had the final items, we computed the final scale by taking the ratio of the total number of target (i.e., aggressive) words the participants endorsed and the total number of words, both target and non-target, they endorsed. We then ran bivariate correlations of the newly created scale and the measures of explicit aggression and the criterion variables. The nine-item word fragment completion task had significant, but low correlations with several explicit measures of aggression (IPIP Aggression: $r(221) = .16$, $p < .05$; Physical Aggression: $r(221) = .11$, $p < .10$). The scale also had low correlations with the work-related criterion variables (CWB-I: $r(221) = .15$, $p < .05$; CWB-O $r(221) = .19$, $p < .05$). See Appendix H for a full correlation matrix of this data. Since the aim of this research is to determine the validity of the word fragment completion task for measuring aggression within an organizational context, and because half of the criteria are work-related, we removed unemployed individuals from the

analysis. After this, 150 participants were included in the analysis. Removing the unemployed participants resulted in increased correlations between several of the explicit measures and the word fragment task. It correlated with a few more of the explicit measures of aggression, though this relationship was still low (Physical Aggression: $r(148) = .14$, $p < .10$; Verbal Aggression: $r(148) = .15$, $p < .10$; IPIP Aggression: $r(148) = .14$, $p < .10$). The new scale's correlations with the criterion improved as well and ranged from low to moderate (CWB-I: $r(148) = .16$, $p < .10$; CWB-O: $r(148) = .29$, $p < .01$; deviance towards family: $r(148) = .14$, $p < .10$). Furthermore, a regression analysis revealed that the word fragment task accounted for additional variance in the criterion with which it had a moderate correlation, counterproductive behaviors directed towards organizations, over and above all of the explicit aggression measures, $\Delta R^2 = .05$, $\Delta F(1, 143) = 9.37$, $p < .01$ (Appendix I).

The deviance towards friends and family scale had moderate to high relationships with all of the other criterion variables, most notably with physical aggression (family: $r(148) = .384$, $p < .05$; friends: $r(148) = .37$, $p < .05$), anger (family: $r(148) = .42$, $p < .05$; friends: $r(148) = .442$, $p < .05$), and interpersonal deviance at work (family: $r(148) = .37$, $p < .05$; friends: $r(148) = .41$, $p < .05$). The two subscales were also highly correlated, but not highly enough to be considered the same construct, $r(148) = .63$, $p < .05$. See Appendix J for a full correlation matrix of this data.

Discussion

In this study, we found initial support that the word fragment completion task for measuring aggression is a valid scale. The word fragment task had correlations with measures of deviance that ranged from weak to moderate. The new scale had weak correlations with several

of the explicit measures of aggression. The factor structure of the word fragment scale was mixed. While all of the items loaded positively onto the first factor, several also had strong negative or positive loadings on two other factors. Though these cross-loadings concern us, the offending items include most of those that are in the scale and removing them would leave too few. Moreover, it is difficult to tell what the additional factors might be. The next step was to test the psychometric properties of the new measure on a second sample.

Study 2

The purpose of the second study was to evaluate the psychometric properties of the word fragment completion task from Study 1. To accomplish this, we administered the new measure to another group of respondents, along with all of the scales from the previous study and another implicit measure, the conditional reasoning test for aggression. We used inter-item reliability, exploratory factor analysis, and correlations with the criteria to evaluate the word fragment completion task.

Method

Participants and Procedure

The second study included 430 students from a large Midwestern university. Sixty-nine percent of the participants were female (n = 296). Sixty-three percent of the participants reported that they were employed (n = 270) and claimed an average tenure of 15 months. The participants completed the questionnaire via an online survey. They completed the implicit aggression measures first, followed by the explicit aggression scales, the counterproductive work behavior scale, the deviance towards friends and family scale, and lastly a set of demographic questions. We randomized the order in which participants completed the two implicit tests (i.e., word fragment completion and conditional reasoning). Since the questionnaire was in an online format, the participants responded to the Likert-type items with a multiple choice scale. For the word fragment completion task, the participants wrote their responses in a text-box. The participants were advised to complete the word fragment completion task as quickly as possible and to skip any items they could not think of a response for immediately via a short paragraph before they completed the measure. The participants also saw an example item (“_oy) with two

possible solutions ("Boy" and "Soy") before starting. All of the students received course credit for their participation.

Measures

Implicit aggression. We used two measures of explicit aggression in this study: the word fragment completion task described in study 1 and the conditional reasoning test (James et al., 2005).

Word fragment completion task. We used the 16-item version of the word fragment completion task described above. We did the refining analyses that we described in the previous study post-hoc. We conducted our statistical analyses on the refined 9-item scale from Study 1. We were able to do this because the 16-item scale included all of the items that we generated in the previous study.

Conditional reasoning test. We also assessed implicit aggression with a 25-item conditional reasoning test (James et al., 2005). In this measure, participants are led to believe they are taking a reasoning test. There are two reasonable solutions for each item, one of which appeals to aggressive individuals, specifically those that use the hostile attribution bias, and the other appeals to pro-social individuals. An example of an item in this measure is included in Appendix K. We cannot include the entire measure for copyright reasons. Each item has four response options, two of which are illogical distracters assigned a value of "0." The aggressive alternative is based on the hostile attribution bias and assigned a value of "+1," whereas the non-aggressive option is based on pro-social values and is assigned a value of "-1." Items are aggregated to create composite scores, with higher scores indicating a stronger implicit readiness to aggress. This measure has a reliability of .78, calculated from a previous study (Bing et al.,

2007). A meta-analysis by Berry, Sackett, and Tobares (2010) found that the conditional reasoning test has weak to moderate correlations with counterproductive work behaviors (r = .26, p > .05) and job performance (r = .14, p > .05), thus supporting its criterion-related validity.

Explicit aggression. Participants completed the same explicit aggression measures used in Study 1. The alpha reliabilities for these measures were .82, .76, .80, .79, and .87, for physical aggression, verbal aggression, anger, hostility, and IPIP aggression respectively.

Counterproductive behaviors. Participants completed the same counterproductive behavior measures used in Study 1. The alpha reliabilities were .83, .80, .84, and .89, for CWB-I, CWB-O, deviance towards family, and deviance towards friends respectively.

Analyses and Results

After all of the participants completed the questionnaire, we cleaned the data by removing all of the respondents who took less than ten minutes to complete the survey. We expected participants to take an average of 15 minutes to complete the entire questionnaire, especially because the conditional reasoning test is very reading-heavy. Thus, we reasoned that respondents that took less than 10 minutes did not pay close attention to the questionnaire. Removing these participants left 412 people in the analysis.

As in Study 1, we evaluated the psychometric properties of the word fragment completion task by examining the alpha reliability of the items and the factor structure. Our analyses revealed that the 9-item word fragment task had a low internal consistency (α = .40), though it was comparable to the pervious study (Study 1: α = .50). There were no negative correlations amongst any of the items.

A exploratory factor analysis revealed that the structure of the word fragment scale in this study was substantially different than that of Study 1. Two of the items had loadings below the .25 cutoff recommended by Johnson and several items had high loadings across four factors. The first factor only explained 16% of the variance (Appendix L).

Hypothesis 1. The first hypothesis stated that the *a)* implicit measures, in this case the word fragment completion task and the conditional reasoning test, and *b)* the explicit aggression measures would have positive correlations with the criterion variables. Lastly, *c)* the two different aggression measures would have a positive correlation with each other. To test this hypothesis, we ran bivariate correlations on the scales in this study.

The first part of hypothesis 1 received mixed support. The word fragment completion task did not have any significant correlations with any of the criteria. Unlike in the previous study, removing the unemployed participants did not help improve the correlations. On the other hand, the conditional reasoning test had significant though weak correlations with all of the criteria (CWB-I: $r(410) = .17$, $p < .01$; CWB-O: $r(410) = .13$, $p < .01$; deviance towards family: $r(410) = .11$, $p < .05$; deviance towards friends: $r(410) = .13$, $p < .01$). Removing the unemployed participants improved most of these correlations slightly (CWB-I: $r(258) = .22$, $p < .01$; CWB-O: $r(258) = .13$, $p < .05$; deviance towards family: $r(260) = .14$, $p < .05$; deviance towards friends: $r(258) = .21$, $p < .01$).

The second part of hypothesis 1 received full support. All of the explicit measures of aggression had strong to moderate correlations with the criteria. The strongest explicit test was Buss and Perry's (1992) physical aggression subscale (CWB-I: $r(410) = .39$, $p < .01$; CWB-O:

$r(410) = .26$, $p < .01$; deviance towards family: $r(410) = .35$, $p < .01$; deviance towards friends: $r(410) = .45$, $p < .01$).

The third part of hypothesis 1 was not supported. The word fragment completion task and the conditional reasoning test were not significantly correlated, $r(410) = .09$, *ns*. See Appendix M for a correlation matrix with these results.

Hypothesis 2. The second hypothesis stated that the two implicit measures would explain variance in the criteria over and above the explicit measures of aggression. To test this hypothesis, we ran several regression analyses in which the four criteria measures were the dependent variable. We put all of the explicit measures into the first step of the equation, followed by the implicit measure in the second step and observed if the change in R^2 was significant.

The first part of hypothesis 2, that the word fragment task would explain variance in the criteria over and above explicit measures, was not supported. The word fragment task did not explain any additional variance beyond the explicit measures in any of the four criteria. Removing the unemployed participants did not improve its contribution.

The second part of hypothesis 2, that the conditional reasoning test would explain variance in the criteria over and above explicit measures, was partially supported. The only deviant behavior that the conditional reasoning test explained beyond the explicit measures was CWB-Is, $\Delta R^2 = .01$, $\Delta F(1, 405) = 4.26$, $p < .05$. Removing the unemployed participants improved the variance explained for CWB-Is slightly, $\Delta R^2 = .02$, $\Delta F(1, 405) = 4.87$, $p < .05$, but

it still did not explain any additional variance in the other criteria. See Appendix N for a summary.

Discussion

The conclusion that stands out the most in this pitting of measures is that the word fragment completion task fell quite short of its promising start in Study 1. The new measure failed to show both construct and convergent validity in this study by failing to correlate with deviant behaviors and explicit aggression measures respectively. Additionally, the factor structure of the word fragment task was a bit different compared with Study 1. Two of the nine items no longer loaded strongly onto the first factor, which now explained less of the variance than it had in Study 1. The item loadings also varied across more factors than they did in the first study.

There may be several reasons for why the word fragment task did poorly the second time around. One possible reason is that the word fragment task is ill-suited to measure aggressive thoughts and emotions. This is supported by the fact that these items had high cross-loadings with multiple factors. There are several reasons why we think that this is not the case. First, the implicit processing component of aggressive behavior is part of several theories of aggression, most notably the General Aggression Model (Anderson & Bushman, 2002). Second, researchers have demonstrated that word fragment tasks can be used to measure emotions and attitudes such as affect (Johnson, Tolentino, Rodopman, & Cho, 2010) and promotion/prevention focus (Johnson & Steinman, 2009). There is no reason to believe that aggressive thoughts and emotions should function any differently in the implicit processing model. Last and perhaps most persuasive is that Anderson, Carnagey, and Eubanks (2003) successfully used a very

similar word fragment task to assess aggressive emotions in college students who were exposed to music with different levels of violent content. The main difference between that study and the current one is the use of an aggression induction.

Another reason why the word fragment task might not have been successful is the change in testing format. In Study 1 the participants completed a pencil-and-paper questionnaire, while in Study 2 they completed the survey entirely online. Though this is unlikely because researchers have widely demonstrated the equivalence of computer and paper-based surveys (e.g., Mueller, Liebig, & Hattrup, 2007), other researchers have found evidence that results on these formats may differ under certain conditions, such as computer anxiety (Norris, Pauli, & Bray, 2007). It has been our observation that the switch to digital text-boxes on the computerized version from the "fill in the letter" style of the paper version has resulted in the respondents producing more nonsense words and non-words. This would result in more "non-words" being coded, though we are not sure that this would influence the results.

The conditional reasoning test fared much better than the word fragment task. It correlated with all of the criteria and explicit measures, showing that it had both criterion-related and convergent validity. These correlations tended to be fairly weak however, and the conditional reasoning test explained variance over and above the explicit measures for only one of the criterion variables. While this limits its usefulness in settings were distortion is not an issue, we would expect that the conditional reasoning test would account for much more variance in the criteria in high-stakes situations where distortion is more likely.

Study 3

The purpose of the third study was to further evaluate the psychometric properties of the word fragment completion task for measuring aggression. In this study, we reverted to a pencil-and-paper format and added additional criterion measures that are more focused on student experiences. We did this because the sample for Study 3 was going to be small and we could not afford to remove unemployed participants from the analysis. A secondary purpose of this study was to examine if the word fragment completion task for measuring affectivity that was developed by Johnson and his colleagues (2010) would work with the current sample. We added this measure because our own word fragment task had not worked as we expected in previous studies and we were curious to see if we could get a previously validated word fragment task to work as expected.

Method

Participants and Procedure

The second study included 77 students from a large Midwestern university. Sixty-two percent of the participants were female (n = 48). Forty-eight percent of the participants reported that they were employed (n = 37) and claimed an average tenure of 23 months. The participants completed a questionnaire containing a 59-item randomized mix of the aggression word fragments used in the previous studies and the affectivity word fragments used by Johnson et al. (2010). This was followed by an explicit aggression scale developed by Buss and Perry (1992), the deviance towards friends and family scale, the PANAS affectivity scale, the IPIP aggression scale, the counterproductive work behavior scale, and lastly the counterproductive student behavior scale. Since the word fragment completion task is vulnerable to contamination from

explicit aggression questions, participants completed it first followed by the explicit measures. We compensated all participants with course credit for involvement.

Measures

Implicit measures. We included two implicit measures in this study. Both scales were word fragment completion tasks, one measuring aggression and the measuring trait affect. The measures were combined together in a randomized order into one set of word fragments. See Appendix O for a full list of items.

Word fragment completion task for aggression. Participants completed the 39-item word fragment completion task for measuring aggression that we discussed in Study 1. The analyses only address the 16-item scale that we derived in Study 1. This is a post-hoc analysis and the 16 items form a subset of the original 39.

Word fragment completion task for affect. We assessed implicit affect using a 20-item scale developed by Johnson et al. (2010). The measure consists of two 10-item subscales, one for negative affectivity and the other for positive affectivity. Just as in the word fragment measures previously discussed, the test instructions require the participants to complete a set of word fragments as quickly as possible and to skip over any items for which they cannot generate a word immediately. All word fragments can be completed with either an affect-laden target word or a neutral non-target word. Examples of positive affect word fragments include "Pro_ _ _" ("Proud," "Prone") and "_ _ ppy" ("Happy," "Hippy"). Examples of negative affect word fragments include "fe _ _ ("Fear," "Feel") and "_ _ set" ("Upset," "Reset"). Johnson does not report the internal consistency of these scales and does not recommend using them except for scale development (Johnson, Tan, & Chang, 2011). Instead, Johnson recommends using test-

retest reliability. After 6 weeks, the correlations between positive (r = .72, p < .05) and negative (r = .65, p < .05) affect showed themselves to be fairly stable. Due to a typo on one of the positive affect words ("_oy") we dropped the number of items for scoring the positive affect subscale down to nine.

Explicit affect. We assessed affectivity with the Positive and Negative Affect Schedule created by Watson, Clark, and Tellegen (1988). See Appendix P for a list of items.

Positive affectivity. Participants completed a 10-item measure of positive affect. They were instructed to read a list of affect-related adjectives and report how often they felt that way across all situations on a 5-point scale ranging from "very slightly or not at all" to "extremely." We scored this measure by adding responses for each item together, with higher scores indicating higher levels of positive affectivity. Example items included "Interested" and "Proud." The internal consistency of this scale was .82.

Negative affectivity. Participants completed a 10-item measure of negative affect. They were instructed to read a list of affect-related adjectives and report how often they felt that way across all situations on a 5-point scale ranging from "very slightly or not at all" to "extremely." We scored this measure by adding responses for each item together, with higher scores indicating higher levels of negative affectivity. Example items included "guilty" and "afraid." The internal consistency of this scale was .76.

Explicit aggression. Participants completed the same explicit aggression measures used in Studies 1 and 2. The alpha reliabilities for these measures were .87, .80, .84, .82, and .86, for physical aggression, verbal aggression, anger, hostility, and IPIP aggression respectively.

Counterproductive behaviors. Participants completed the same counterproductive behaviors measures used in Studies 1 and 2. The only new addition was the student counterproductive behavior scale. The alpha reliabilities were .88, .85, .83, and .86, for CWB-I, CWB-O, deviance towards family, and deviance towards friends respectively.

Student counterproductive behaviors. We assessed counterproductive student behavior using a 23-items self-report test developed by Hakstian, Farrell, and Tweed (2002). Respondents reported if they engaged in various behaviors on a 6-point scale, ranging from "never once considered it" to "did it more than three times." This measure had five subscales: cheating (e.g., "during an exam, brought crib notes or other aids that were not officially permitted"), property theft (e.g., "shoplifted store merchandise"), and misrepresentation (e.g., "submitted a class paper that was not your work"), work avoidance (e.g., "came to work late or left early"), and petty gain (e.g., "Allowed yourself to be paid more hours than you worked"). These subscales have alpha reliabilities of .85, .42, .63, .73, and .47 for cheating, property theft, misrepresentation, work avoidance, and petty gain respectively. See Appendix Q for a complete list of items. We computed scores using the mean of each subscale. Higher scores indicate a higher level of each counterproductive behavior.

Analyses and Results

Once again we evaluated the psychometric properties of the 9-item word fragment completion task for measuring aggression derived in Study 1. The alpha reliability of these nine items was .18, with two of the items having negative correlations with the rest and many others having very weak relationships with each other.

The factor analysis of the 9-item word fragment scale revealed very weak loadings amongst some of the items on the first factor, with three falling below the .25 threshold recommended by Johnson et al. (2011). All of the items had cross-loadings across as many as four different factors. The first factor explained only 19.75% of the variance. See Appendix R for a summary of these item loadings.

The 9-item word fragment completion task had significant but weak correlations with physical aggression, $r(75) = .21$, $p < .10$, verbal aggression, $r(75) = .21$, $p < .10$, and CWB-Is, $r(75) = .23$, $p < .10$. Oddly enough, it also had a weak positive correlation with implicit positive affect, $r(75) = .21$, $p < .10$. None of the other variables had a significant correlation with the 9-item implicit aggression measure. We conducted a follow-up analysis to see if the word fragment task predicted variance in CWB-Is over and above the explicit measures of aggression, however we found that it did not contribute any variance beyond these measures.

The word fragment completion tasks for positive and negative affectivity received mixed results as well. We failed to duplicate the results achieved by Johnson et al. (2010), as the implicit measures of affect did not correlate significantly with their explicit counterparts. The measures correlated as might be expected with a handful of criterion variables, negative affect had a positive correlation with CWB-Is, $r(75) = .24$, $p < .10$, and positive affect had a negative correlation with CWB-Os, $r(75) = -.22$, $p < .10$.. The explicit measures of aggression had generally positive correlations with the criteria that were in line with the previous studies. The counterproductive student behavior subscale had overall mixed relationships with the other explicit variables. This may be because these scales had poor reliability or because some of the

items might not be related to aggressive actions per-se. See Appendix S for a complete correlation matrix of these analyses.

Discussion

There are several noteworthy things that we can conclude from this study. One such implication is that the word fragment completion task for measuring aggression received mixed support. The factor structure of the nine items was as wide spread as they were in Study 2 and the inter-correlations among the items were quite low. It correlated positively with two of the explicit measures and one of the criterion measures. This is interesting considering the measure's low reliability and inconsistent factor structure. Given how weak these relationships are, it is possible that these results are due to chance

Another notable finding is that the word fragment completion task for affect that was validated by Johnson et al. (2010) received mixed results. Positive affect was negatively related to one of the deviance variables, while negative affect was positively related to a different deviance variable. Strangely enough, positive affect had a positive correlation with implicit aggression. We do not know why this should be so. Our first thought was that this was related to a coding error, but after double-checking the raw data this appears not to be the case. Most notably, neither of these scales had significant correlations with explicit affect. One reason that this might have happened is that the items for this measure were presented all together with the aggression word fragments in a randomized order. This is a slightly different format than the way in which they were validated. There is currently no research on how presentation order influences word fragments. It is possible that the word fragments from the two different measures influenced one another, though we think it is unlikely that they would influence each

other to such an extent. The premise behind the word fragments is that they are inherently ambiguous and the respondent chooses whether to endorse an aggressive/affect related or neutral word. Thus each word fragment is "equivalent" to any other word fragment in a way that two items from two different explicit tests are not, and the biasing effect of the presentation order should be minimized. There is another reason why we think the word fragment tasks did not work well in this study and how we think they can be improved. We will save this for the General Discussion section.

General Discussion

The main goal of this set of studies was to validate a word fragment completion task to measure aggressive thoughts and emotions. In this respect these studies achieved mixed results, though we would be hard-pressed to call it a success. Though the word fragment completion task for aggression had a promising start in Study 1, the two subsequent studies showed that the 9-item measure was unreliable and not valid. The item inter-correlations were inconsistent from study to study, with items that were positively correlated in one study suddenly becoming negatively correlated in another. The factor structure of the items was also inconsistent. Many of the items had strong loadings onto multiple factors when our goal was to find a single-factor solution.

Limitations. There are several reasons why the word fragment task to measure aggression might not have worked. As we stated in a previous discussion, one possible reason is that aggressive thoughts and emotions are not well suited to be measured by word fragments. Just as before, we disagree with this notion. The theoretical background of how the word fragment task functions (i.e., implicit processing theory) is in line with several theories of aggression (e.g., Anderson & Bushman, 2002) and researchers have already shown that it works as a dependent measure (Anderson, Carnagey, & Eubanks, 2003). Additionally, in Study 3 we found that a previously validated word fragment completion task measuring affect also failed to work as expected. This leads us to conclude that the problem with our measure is methodological.

There are several methodological limitations in this series of studies. First, we used both a paper-and-pencil and an online format. Although researchers generally agree that these two

formats are equivalent (e.g., Mueller, Liebig, & Hattrup, 2007) this may not apply to word fragments. This limits how closely Study 1 can be compared with Study 2, since it is unclear if our failure to find support for the word fragment completion task is due to the test itself or to the format. This criticism is assuaged somewhat by the results of Study 3, which are similar to the first two studies. The word fragment completion task had poor factor structure, low inter-item reliability, and inconsistent correlations with the criteria in all three studies, thus it is unlikely that the format change was the main reason for our failure to find support for the word fragment completion task. Secondly, we randomized the word fragment scales for aggression and affect in Study 3. Mixing the scales in this way might have changed the way participants interpreted the items and it is different from the way that both scales were initially validated.

Future Research. The main way in which these studies differed from some previous attempts to use word fragments is with the use of an induction. For example, Johnson and Saboe (in press) induced either independent or interdependent thinking through vignettes when developing a word fragment task for self-identity. Induction is helpful because it makes the desired attitudes salient in the minds of the participants. This might be particularly helpful for measuring aggression, because people do not experience aggressive thoughts and emotions during most of their everyday experience.

A future study validating a word fragment completion task for measuring aggression might do well by trying to induce aggressive thoughts or emotions into one group of participants, while not inducing aggression in another group. If the word fragment task measures aggression at the implicit level, than the relationships between the aggressive word fragments endorsed and

counterproductive behaviors should be stronger for participants who where provoked into having aggressive thoughts and emotions than for those who had not.

If introducing an aggression induction does solve the problem of the validity of the word fragment task, it will introduce another problem. If the word fragment task only works when the respondent is experiencing the emotions that the task is supposed to measure, than it might not be truly measuring that construct at the "trait" level. Knowing how job applicants feel as they are taking a test is not as useful as knowing how predisposed they are towards feeling a certain way. An induction might also have practical problems. It is costly and unethical for organizations to induce aggression in a room full of job applicants, especially when an explicit test does not have these associated caveats.

Another possible direction for future research is to implement different ways to assess the criterion variables. In all three of the studies discussed here, both the explicit measures of aggression and the criteria were assessed in essentially the same way: by having the participants report at that very moment what behaviors they engaged in and what thoughts they had been feeling. As we discussed earlier, the respondents might not be able to willing to share this information. While explicit measures have their place, they are a poor proxy for real world behaviors. One possible solution is to implement behavioral measures of counterproductive behaviors. For example, a future study might ask the participants to complete the word fragment completion task for measuring aggression along with several explicit aggression measures, and after the questionnaire is over provide the participants the opportunity to aggress. They could be instructed to evaluate a rude experimenter after being slyly informed that their evaluations may influence that experimenter's pay for example.

Alternative Implicit Measures. In addition to future research efforts focusing on using the word fragment completion task there are also alternative approaches for assessing aggression at the implicit level. One such alternative is the conceptually similar sentence completion test. Sentence completion tests consist of a set of sentence fragments that respondents must finish in a way that is meaningful to them. Researchers interpret these completed sentences as indicative of the respondent's emotions, attitudes, and personality traits. Sentence completion tasks have been successfully used to evaluate constructs in several disciplines within psychology including psychological maladjustment (Rotter, Lah, & Rafferty, 1992) and motivation to manage (Miner, 1964).

The main advantage that the sentence completion test has over the word fragment completion task is that it has less inherent ambiguity in the way that both the respondents and the researchers can interpret the answers. In the word fragment completion task several of the aggressive options can be interpreted as either aggressive or neutral. For example, the word "punch" can be interpreted as either an aggressive verb (i.e., to hit someone) or as a non-aggressive noun (i.e., a drink made from fruit juice). If a respondent endorsed a word fragment with the word "punch" it is unclear whether they have aggressive concepts more easily assessable or not because we do not know which meaning of the word they intended. Sentence completion tasks have a more direct interpretation, provided that the researcher has set down specific guidelines for target responses. For example, one of the items from the Miner sentence completion test of motivation to manage is "my family doctor is." This item assesses the respondent's attitudes to authority figures. A response of "my family doctor is trustworthy" indicates trust in authority. The item sets a context for the responses and allows for less

ambiguity in its interpretation provided that the researchers have clearly outlined what the item is assessing and which responses indicate the presence of the to-be-measured construct.

Conclusion. Historically, psychologists have predominately relied on explicit measures to assess personality and attitudes. However implicit processes play an important role in the personality traits, attitudes, and emotions of human beings. Thus explicit measures do not present a complete picture of personality traits and assessing implicit processes is critical for furthering human understanding of how these traits manifest themselves. Developing valid and reliable measures for implicit processes are the first step toward this understanding.

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Appendix A

Word Fragment Completion Task

Instructions: Complete the following word fragments as quickly as possible. If you are unable to think of a word immediately, please skip the question and move on to the next one.

Scoring: The number of aggressive word blanks completed shall be summed together and divided by the total number of blanks completed. Higher scores will indicate higher levels of trait aggression.

1. _ate

Hate
Bate

2. Ma_

Mad
Map

3. A_use

Abuse
Amuse

4. _unch

Punch
Lunch

5. Ange_

Anger
Angel

6. _un

Gun
Fun

7. _ully

Bully
Fully

8. T_m_er

Temper
Timber

9. _age

Rage
Sage

10. B_tter

Bitter
Butter

11. _ude

Rude
Dude

12. _asty

Nasty
Hasty

13. _arm

Harm
Farm

14. Host_ _ _

Hostile
Hostess

15. Vi _ _ _ _ —

Violence
Villages

16. H_ _t

Hurt
Hart

17. _ ain

Pain
Gain

18. St _ _

Stab
Stop

19. _ean

Mean
Lean

20. H_t

Hit
Hat

21. Sl _ _

Slap
Sled

22. _ight

Fight
Sight

23. M _ _ _ er

Murder
Mother

24. Attac_

Attack
Attach

25. C_rse

Curse
Corse

26. _ar

War
Car

27. _ell

Yell
Bell

28. _ush

Push
Bush

29. _ ill

Kill
Fill

30. Beh _ _ d

Behead
Behind

31. B _ rn

Burn
Barn

32. P _ _ son

Poison
Person

33. C _ t

Cut
Cat

34. B _ _ t

Beat
Boot

35. S _ ay

Slay
Stay

36. S _ ash

Slash
Stash

37. Cho _ _

Choke
Chore

38. Des _ _ _ _

Destroy
Dessert

39. Sh _ _ t

Shoot
Short

Appendix B

Aggression Questionnaire

Please indicate how often you do the following:	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Once in a while I can't control the urge to strike another person.	1	2	3	4	5	6	7
2. Given enough provocation, I may hit another person.	1	2	3	4	5	6	7
3. If somebody hits me, I hit back.	1	2	3	4	5	6	7
4. I get into fights a little more than the average person.	1	2	3	4	5	6	7
5. If I have to resort to violence to protect my rights, I will.	1	2	3	4	5	6	7
6. There are people who pushed me so far that we came to blows.	1	2	3	4	5	6	7
7. I can think of no good reason for ever hitting a person.	1	2	3	4	5	6	7
8. I have threatened people I know.	1	2	3	4	5	6	7
9. I have become so mad that I have broken things.	1	2	3	4	5	6	7
10. I tell my friends openly when I disagree with them.	1	2	3	4	5	6	7
11. I often find myself disagreeing with people.	1	2	3	4	5	6	7
12. For this item, please circle 5	1	2	3	4	5	6	7
13. When people annoy me, I may tell them what I think of them.	1	2	3	4	5	6	7
14. I can't help getting into arguments when people disagree with me.	1	2	3	4	5	6	7
15. My friends say that I'm somewhat argumentative.	1	2	3	4	5	6	7
16. I flare up quickly but get over it quickly.	1	2	3	4	5	6	7
17. When frustrated, I let my irritation show.	1	2	3	4	5	6	7
18. I sometimes feel like a powder keg ready to explode.	1	2	3	4	5	6	7
19. I am an even-tempered person.	1	2	3	4	5	6	7
20. Some of my friends think I'm a hothead.	1	2	3	4	5	6	7
21. For this item, please circle 3.	1	2	3	4	5	6	7
22. Sometimes I fly off the handle for no good reason.	1	2	3	4	5	6	7
23. I have trouble controlling my temper.	1	2	3	4	5	6	7
24. I am sometimes eaten up with jealousy.	1	2	3	4	5	6	7
25. At times I feel I have gotten a raw deal out of life.	1	2	3	4	5	6	7
26. Other people always seem to get the breaks.	1	2	3	4	5	6	7
27. I wonder why sometimes I feel so bitter about things.	1	2	3	4	5	6	7
28. I know that "friends" talk about me behind my back.	1	2	3	4	5	6	7
29. I am suspicious of overly friendly strangers.	1	2	3	4	5	6	7
30. I sometimes feel that people are laughing at me behind my back.	1	2	3	4	5	6	7
31. When people are especially nice, I wonder what they want.	1	2	3	4	5	6	7

Appendix C

IPIP NEO Anger Scale

Please indicate the extent to which each of these statements describes how **you generally behave**.	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I get angry easily.	1	2	3	4	5	6	7
2. I seldom get mad.	1	2	3	4	5	6	7
3. I get irritated easily.	1	2	3	4	5	6	7
4. I am not easily annoyed.	1	2	3	4	5	6	7
5. I get upset easily.	1	2	3	4	5	6	7
6. I keep my cool.	1	2	3	4	5	6	7
7. I am often in a bad mood.	1	2	3	4	5	6	7
8. I rarely complain.	1	2	3	4	5	6	7
9. I lose my temper.	1	2	3	4	5	6	7
10. I rarely get irritated.	1	2	3	4	5	6	7

Appendix D

Counterproductive Work Behavior

How often have you engaged in the following behaviors at work during the last year?	Never	Once a year	Twice a year	Several times a year	Monthly	Weekly	Daily
1. Made fun of someone at work.	0	1	2	3	4	5	6
2. Said something hurtful to someone at work.	0	1	2	3	4	5	6
3. Made an ethnic, religious, or racial remark at work.	0	1	2	3	4	5	6
4. Cursed at someone at work.	0	1	2	3	4	5	6
5. Played a mean prank on someone at work.	0	1	2	3	4	5	6
6. Acted rudely toward someone at work.	0	1	2	3	4	5	6
7. Publicly embarrassed someone at work.	0	1	2	3	4	5	6
8. Taken property from work without permission.	0	1	2	3	4	5	6
9. Spent too much time fantasizing or daydreaming instead of working.	0	1	2	3	4	5	6
10. Falsified a receipt to get reimbursement for more money than you spent on business expenses.	0	1	2	3	4	5	6
11. Taken an additional or longer break than is acceptable at your workplace.	0	1	2	3	4	5	6
12. Come in late to work without permission.	0	1	2	3	4	5	6
13. Littered your work environment.	0	1	2	3	4	5	6
14. For this item, please circle 2.	0	1	2	3	4	5	6
15. Neglected to follow your boss's instructions.	0	1	2	3	4	5	6
16. Intentionally worked slower than you could have worked.	0	1	2	3	4	5	6
17. Discussed confidential company information with an unauthorized person.	0	1	2	3	4	5	6
18. Consumed alcohol on the job.	0	1	2	3	4	5	6
19. Put little effort into your work.	0	1	2	3	4	5	6
20. Dragged out work in order to get overtime.	0	1	2	3	4	5	6

Appendix E

Counterproductive Behavior Towards Friends and Family

How often have you engaged in the following behaviors during the last year?	Never	Once a year	Twice a year	Several times a year	Monthly	Weekly	Daily
1. Made fun of a family member.	0	1	2	3	4	5	6
2. Said something hurtful to a family member.	0	1	2	3	4	5	6
3. Made rude remark toward a family member.	0	1	2	3	4	5	6
4. Cursed at a family member.	0	1	2	3	4	5	6
5. Played a mean prank on a family member.	0	1	2	3	4	5	6
6. Acted rudely toward a family member.	0	1	2	3	4	5	6
7. Publicly embarrassed a family member.	0	1	2	3	4	5	6
8. Made fun of a friend.	0	1	2	3	4	5	6
9. Said something hurtful to a friend.	0	1	2	3	4	5	6
10. Made rude remark toward a friend.	0	1	2	3	4	5	6
11. Cursed at a friend.	0	1	2	3	4	5	6
12. Played a mean prank on a friend.	0	1	2	3	4	5	6
13. Acted rudely toward a friend.	0	1	2	3	4	5	6
14. Publicly embarrassed a friend.	0	1	2	3	4	5	6

Appendix F

Word Fragment Completion Task

Instructions: Complete the following word fragments as quickly as possible. If you are unable to think of a word immediately, please skip the question and move on to the next one.

1. **A_use**
2. **Ange_**
3. **T_m_er**
4. **_age**
5. **_ude**
6. **_asty**
7. **_arm**
8. **_ ain**
9. **H_t**
10. **Sl _ _**
11. **_ight**
12. **C_rse**
13. **_ell**
14. **Beh _ _ d**
15. **B _ rn**
16. **P _ _ son**

Appendix G

*Factor loadings for the 9-item word fragment completion task for aggression for Study 1 (*N = *225)*

	1	2	3
Ange_	.55		
T_m_er	.35	.59	
_age	.49		.45
_ude	.38	-.46	-.39
_asty	.59	-.26	
_arm	.48		-.33
Sl_ _	.41	-.53	.37
C_rse	.34	.41	.35
B_rn	.40	.34	-.63

Note. Factor loadings < .25 are suppressed

Appendix H

Descriptive Statistics and Correlations for all participants for Study 1

	M	SD	1	2	3	4	5	6	7	8	9	
1. 9-item Word Fragment Task For Aggression	.44	.15	(.50)									
2. Physical Aggression	3.46	1.20	.11*	(.82)								
3. Verbal Aggression	3.93	1.07	.09	.52***	(.71)							
4. Anger	3.00	1.09	.08	.59***	.54***	(.82)						
5. Hostility	3.29	1.33	.07	.45***	.48***	.60***	(.88)					
6. IPIP Aggression	3.37	1.04	.16**	.46***	.47***	.71***	.57***	(.87)				
7. Interpersonal Deviance at Work	1.04	1.02	.15**	.29***	.22***	.21**	.11*	.26***	(.80)			
8. Organizational Deviance at Work	.92	.71	.19***	.22***	.15**	.20**	.25***	.27***	.38***	(.71)		
9. Deviance Towards Family	1.65	1.29	.05	.38***	.37***	.34***	.30***	.32***	.32**	.23***	(.88)	
10. Deviance Towards Friends	1.48	1.34	.02	.38***	.42***	.39***	.39***	.33***	.37**	.28***	.67***	(.90)

Note. $N = 223$. Cronbach's Alpha in brackets. *$p < .10$, two-tailed; **$p < .05$, two-tailed, *** $p < .01$, two-tailed.

Appendix I

Hierarchical Regression Analysis Examining the Incremental Validity of the Word Fragment Completion Task for Study 1

	Deviance Criteria											
	Organizational Deviance			Interpersonal Deviance			Deviance Towards Family			Deviance Towards Friends		
Ordered Predictors	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2
1. Physical Aggression	.21	.12*	.12*	.20	.13	.13	.15	.22	.22	.08	.26	.26
Verbal Aggression	.00			.18			.12			.21		
Anger	-.24			-.03			.22			.20		
Hostile	.21			-.22			-.03			.12		
IPIP Aggression	.19			.21			.09			.01		
2. Word Fragment Task	.24	.06*	.18*	.01	.01	.14	.07	.01	.23	.01	.00	.26

Note. $N = 150$. $^*p < .05$.

Appendix J

Descriptive Statistics and Correlations for employed participants for Study 1

	M	SD	1	2	3	4	5	6	7	8	9	
1. 9 –item Word Fragment Task For Aggression	.43	.16	(.50)									
2. Physical Aggression	3.36	1.20	.14*	(.82)								
3. Verbal Aggression	3.91	1.05	.16**	.56***	(.71)							
4. Anger	2.92	1.08	.09	.64***	.58***	(.82)						
5. Hostility	3.31	1.37	.11	.51***	.52***	.65***	(.88)					
6. IPIP Aggression	3.36	1.08	.16*	.52***	.50***	.71***	.61***	(.87)				
7. Interpersonal Deviance at Work	1.10	1.06	.16*	.27***	.26***	.19**	.07	.24***	(.80)			
8. Organizational Deviance at Work	.92	.68	.29***	.26***	.18***	.16**	.27***	.26***	.38***	(.71)		
9. Deviance Towards Family	1.59	1.27	.14*	.38***	.35***	.42***	.30***	.37***	.37***	.29***	(.88)	
10. Deviance Towards Friends	1.43	1.32	.08	.37***	.42***	.44***	.39***	.36***	.41***	.27***	.63***	(.90)

Note. $N = 150$. Cronbach's Alpha in brackets. *$p < .10$, two-tailed; **$p < .05$, two-tailed, *** $p < .01$, two-tailed

Appendix K

Conditional Reasoning Test Sample Item

American cars have gotten better in the past 15 years. American carmakers started to build better cars when they began to lose business to the Japanese. Many American buyers thought that foreign cars were better made. Which of the following is the most logical conclusion based on the above?

a. *America was the world's largest producer of airplanes 15 years ago.*
b. *Swedish carmakers lost business in America 15 years ago.*
c. *The Japanese knew more than Americans about building good cars 15 years ago.*
d. *American carmakers built cars to wear out 15 years ago so they could make a lot of money selling parts.*

Appendix L

*Factor loadings for the 9-item word fragment completion task for aggression for Study 2 (*N = *412)*

	1	2	3	4
Ange_	.30	-.58	.29	-.28
T_m_er	.44			
_age	.50	-.28	.37	-.27
_ude	.36		-.64	-.35
_asty	.41	-.28	-.26	.46
_arm	.65			
Sl_ _		.66		
C_rse		..43	.58	
B_rn	.37			.70

Note. Factor loadings < .25 are suppressed

Appendix M

Descriptive Statistics and Correlations for Study 2

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. 9- item Word Fragment Task For Aggression	.41	.17	(.37)										
2. Conditional Reasoning Test - Aggression	-10.16	5.71	.09	(.63)									
3. Physical Aggression	3.48	1.72	.03	.18**	(.82)								
4. Verbal Aggression	4.05	1.08	-.01	.10*	.51**	(.76)							
5. Anger	3.19	1.07	..02	.12*	.45**	.53**	(.80)						
6. Hostility	3.80	1.13	.01	.15*	.38**	.39**	.49**	(.79)					
7. IPIP Aggression	3.47	1.03	.04	.11*	.38**	.43**	.71**	.46**	(.87)				
8. Interpersonal Deviance at Work	1.07	1.13	.01	.17**	.37**	.35**	.31**	.25**	.27**	(.83)			
9. Organizational Deviance at Work	1.06	.87	-.01	.13*	.26**	.20**	.21**	.22**	.18**	.52**	(.80)		
10. Deviance Towards Family	1.86	1.17	.00	.11*	.35**	.34**	.25**	.23**	.23**	.39**	.26**	(.84)	
11. Deviance Towards Friends	11.47	8.83	.06	.13**	.45**	.42**	.29**	.22**	.25**	.60**	.40**	.62**	(.89)

Note. $N = 411$. Cronbach's Alpha in brackets. *$p < .05$, two-tailed; **$p < .01$, two-tailed.

Appendix N

Hierarchical Regression Analysis Examining the Incremental Validity of the Word Fragment Completion and the Conditional Judgment Test for Study 2

	Deviance Criteria											
	Interpersonal Deviance			Organizational Deviance			Deviance Towards Family			Deviance Towards Friends		
Ordered Predictors	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2	*B*	ΔR^2	R^2
1. Physical Aggression	..25	.19*	.19*	.17	.09*	.09*	.22	.16*	.16*	.32	.25	.25
Verbal Aggression	.15			.04			.20			.25		
Anger	.05			.05			-.02			-.00		
Hostile	.05			.11			.06			-.01		
IPIP Aggression	.05			.01			.05			.04		
2. Word Fragment Task	.00	.00*	.19*	-.01	.00	.09*	-.01	.00	.16*	.05	.00	.25*
1. Physical Aggression	.25	.19*	.19*	.17	.09*	.09*	.22	.16*	.16*	.32	.25*	.25*
Verbal Aggression	.15			.04			.20			.25		
Anger	.05			.05			-.02			-.00		
Hostile	.05			.11			.06			-.01		
IPIP Aggression	.05			.01			.05			.04		
2. Conditional Judgment Test	.01	.01*	.20*	.07	.01	.09*	.04	.00	.16*	.05	.00	.25*

Note. $N = 411$. $^*p < .05$.

Appendix O

Word Fragment Completion Task Used in Study 3

Instructions: Complete the following word fragments as quickly as possible. If you are unable to think of a word immediately, please skip the question and move on to the next one.

1. _ A I N
2. H O S T _ _ _
3. A N G E _
4. _ A S T Y
5. _ _ _ _ O U S
6. D E S _ _ _ _
7. _ E A N
8. B E H _ _ D
9. _ U D E
10. _U L L Y
11. _A G E
12. A _ U S E
13. C H O _ _
14. S _ A Y
15. _ E R _ Y
16. _ I L L
17. _ R O _ N
18. _ _ A D
19. _ _ P P Y
20. _ E L L
21. D I S _ _ _ _ _
22. _ U S H
23. S M _ _ _
24. S T _ _
25. _ A R M
26. C H _ _ R
27. S H _ _ T
28. _ _ S E T
29. V I _ _ _ _ _ _
30. T _ M _ E R
31. E X _ _ _ _
32. _ U I L T
33. _ _ L L Y
34. _ _ _ T I L E
35. _ O Y
36. M A _
37. C _ T
38. _ U N C H
39. A F _ _ _ D
40. A T T A C _
41. S L _ _
42. B _ T T E R

43. H _ _ T
44. H _ T
45. _ A R
46. M _ _ _ E R
47. _A T E
48. F E _ _
49. P _ _ S O N
50. C_ R S E
51. _ U N
52. _ I G H T
53. S _ A S H
54. _ _ A R _ D
55. _ _ N S E
56. B _ R N
57. B _ _ T
58. _ _ E E
59. P R O _ _

Scoring: The number of aggressive word blanks completed shall be summed together and divided by the total number of blanks completed. Higher scores will indicate higher levels of trait aggression.

_ate	A_use	Ange_
Hate	Abuse	Anger
Bate	Amuse	Angel
Ma_	_unch	_un
Mad	Punch	Gun
Map	Lunch	Fun

_ully

Bully

Fully

T_m_er

Temper

Timber

_age

Rage

Sage

B_tter

Bitter

Butter

_ude

Rude

Dude

_asty

Nasty

Hasty

_arm

Harm

Farm

Host_ _ _

Hostile

Hostess

Vi _ _ _ _ _

Violence

Villages

H_ _t

Hurt

Heat

_ ain

Pain

Gain

St _ _

Stab

Stop

_ean

Mean

Lean

H_t

Hit

Hat

Sl _ _

Slap

Sled

_ight

Fight

Sight

M _ _ _ er

Murder

Mother

Attac_

Attack

Attach

C_rse

Curse

Corse

_ar

War

Car

_ell

Yell

Bell

_ush

Push

Bush

_ ill

Kill

Fill

Beh _ _ d

Behead

Behind

B _ rn

Burn

Barn

P _ _ son

Poison

Person

C _ t

Cut

Cat

B _ _ t

Beat

Boot

S _ ay

Slay

Stay

S _ ash

Slash

Stash

Cho _ _

Choke

Chore

Des _ _ _ _

Destroy

Dessert

Sh _ _ t

Shoot

Short

F E _ _ – FEAR FEEL, FEED

P R O _ _ _ PROUD – PROWL, PRONE

_ U I L T – GUILT BUILT, QUILT

_ _ A D GLAD – READ, DEAL

_ _ _ T I L E – HOSTILE REPTILE

_ E R _ Y MERRY – BERRY, FERRY

_ _ A R _ D – SCARED STARED, FLARED

S M _ _ _ SMILE – SMOKE, SMART

_ _ _ _ O U S – NERVOUS TEDIOUS

E X _ _ _ _ EXCITE – EXTEND, EXPAND

_ _ N S E – TENSE SENSE, DENSE

_ O Y JOY – SOY, BOY

_ _ S E T – UPSET ASSET, RESET

_ _ E E GLEE – FREE, TREE

D I S _ _ _ _ _ – DISTRESS DISPENSE

_ _ P P Y HAPPY – HIPPY, SAPPY

_ R O _ N – FROWN CROWN, BROWN

C H _ _ R CHEER – CHAIR, CHOIR

A F _ _ _ D – AFRAID AFFORD

_ _ L L Y JOLLY – JELLY, BELL

Appendix P

PANAS Scale

Indicate to what extent you generally feel this way—that is, how you feel on average and across all situations.	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1. Interested	1	2	3	4	5
2. Disinterested	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

Appendix Q

Counterproductive Student Behavior

Please indicate how often you do the following:	Never considered it	Considered it, but didn't do it	Did it perhaps once, but not	Did it once	Did it twice	Did it three times or
1. During an exam, quickly look at, and got information from a classmates paper.	1	2	3	4	5	6
2. During an exam, briefly glance at another person's paper.	1	2	3	4	5	6
3. During an exam, brought crib notes or other aids that were not officially permitted.	1	2	3	4	5	6
4. Knowingly helped a classmate during an exam by allowing him/her to see your exam paper.	1	2	3	4	5	6
5. During a "closed-book" exam, arranged your books (or notes) in such a way that you were able	1	2	3	4	5	6
6. Borrowed or took money from your employer without approval.	1	2	3	4	5	6
7. Took company tools and equipment.	1	2	3	4	5	6
8. Shoplifted store merchandise.	1	2	3	4	5	6
9. Handed in an assignment or project that contained material that had been copied from	1	2	3	4	5	6
10. For a term paper or essay, copied a portion of the text directly from the book or article without	1	2	3	4	5	6
11. Received help from others on homework assignments that were supposed to have been	1	2	3	4	5	6
12. For this item, please circle 2	1	2	3	4	5	6
13. Submitted a class paper that was not your work.	1	2	3	4	5	6
14. Allowed yourself to be paid more hours than you worked.	1	2	3	4	5	6
15. Attempted to avoid paying overdue fines on a library book.	1	2	3	4	5	6
16. Were spoken to by a teacher or professor for 'disruptive' behavior during class.	1	2	3	4	5	6
17. Before a "make-up" exam, asked other students in the class who have already taken the	1	2	3	4	5	6
18. Examined a copy of an exam which was taken without permission by a professor.	1	2	3	4	5	6
19. Failed to return library books on time.	1	2	3	4	5	6
20. Came to work late.	1	2	3	4	5	6
21. For this item, please circle 6.	1	2	3	4	5	6
22. Took a long lunch or break without approval.	1	2	3	4	5	6
23. Used sick leave when not sick.	1	2	3	4	5	6

Appendix R

*Factor loadings for the 9-item word fragment completion task for aggression for Study 3 (*N = *78)*

	1	2	3	4
Ange_	.44	-.32	.62	
_asty	.27			-.89
_ude	-.64		.40	
_age		-.37		
_arm	.69			
T_m_er		.81		
Sl_ _		.48	.67	
C_rse	.55		.-38	.38
B_rn	.53	.55		

Note. Factor loadings < .25 are suppressed

Appendix S

Descriptive Statistics and Correlations for Study 3

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. 9-Item Word Fragment Task For Aggression	.56	.18	(.18)													
2. Implicit NA	.34	.29	.05	(.66)												
3. Implicit PA	.29	.16	.21*	-.05	(.57)											
4. Explicit PA	3.60	.60	.07	.07	-.01	(.82)										
5. Explicit NA	2.13	.55	.04	-.05	-.17	.02	(.77)									
6. IPIP Aggression	3.53	1.07	..07	-.02	-.02	-.22	.28*	(.86)								
7. Physical Aggression	3.29	1.27	.21*	-.02	.19*	-.02	-.03	.47**	(.87)							
8. Verbal Aggression	4.24	1.28	.21*	-.10	.16	.01	.11	.47**	.60**	(.80)						
9. Anger	2.99	1.24	.01	.04	.13	-.06	.18	.64**	.64**	.54**	(.84)					
10. Hostility	3.288	1.14	.09	-.01	.08	.03	.29*	.20	.22	.23*	.44**	(.82)				
11. Interpersonal Deviance at Work	1.03	1.12	.23*	.24*	-.07	.09	.03	.33**	.41**	.22	.36**	.06	(.88)			
12.Organizational Deviance at Work	.98	.88	.07	-.07	-.22*	.11	.21	.01	.18	.08	.18	.31**	.50**	(.85)		
13. Deviance Towards Family	2.11	1.05	.08	.09	-.07	.15	.31**	.32**	.30**	.19	.31**	.11	.39**	.11	(.83)	
14. Deviance Towards Friends	1.90	1.11	.13	-.04	-.11	.11	.31**	.21	.40**	.31**	.28*	.24*	.33**	.30**	.64**	(.86)

Note. $N = 77$. Cronbach's Alpha in brackets. *$p < .10$, two-tailed; **$p < .05$, two-tailed; ***$p < .01$, two-tailed.