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Personality, other dispositional variables, and human adaptability

by

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A dissertation submitted to the graduate faculty  
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Major: Psychology (Counseling Psychology)

Major Professor: Fred H. Borgen

Iowa State University

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## Personality, other dispositional variables, and human adaptability

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The relationships among several variables that have been demonstrated to relate to one another and to positive human functioning were examined. The variables included in the study are Extraversion, Neuroticism, positive and negative affect, self-efficacy, self-esteem, optimism, locus of control, and emotional intelligence. The primary goals of the study were to determine whether an underlying element of adaptability could explain the previously reported overlap among these constructs, to examine the predictive ability of these constructs with regard to academic success, and to engage in exploratory investigation of the construct of emotional intelligence. Participants were 316 undergraduate students (211 female, 105 male). A factor analysis was conducted using all the variables, including several that were included for purposes of disconfirmation. The variables predicted to be related to adaptability (listed above) loaded on the first two factors, labeled Reflective Adaptability and Agentic Adaptability. Other variables not expected to be related to adaptability loaded on the remaining three factors. In addition, six detailed hypotheses were formulated based on previous findings and theoretical principles. Most hypotheses were supported, and most expected relationships were found. In general, the conceptualization of an underlying element of adaptability was supported, because of the factor analytic results and because variables expected to be included in this construct were found to have much stronger relationships with one another than they did with variables that were not expected to be included in the construct of adaptability (e.g., Holland theme self-efficacy). Nevertheless,

there was also support for the conceptualization of variables included in the study as distinct constructs that are independent from one another. Findings related to emotional intelligence suggest the importance of further investigation using alternate measures of the construct. Few variables in the study were found to predict GPA or ACT scores; Investigative self-efficacy was a notable exception.

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## INTRODUCTION

A wide variety of individual difference and personality variables have been shown to have an impact on an even broader range of aspects of human functioning. To cite just a few examples, Extraversion is related to job success and satisfaction (Tokar & Subich, 1997), positive affect predicts the quality of people's social interactions (Berry & Hansen, 1996), and locus of control is related to psychological health in people with arthritis (Schiaffino & Revenson, 1992). Furthermore, many of these characteristics of functional individuals have been shown to relate to one another. Substantial correlations have been observed between self-efficacy, self-esteem, locus of control, and emotional stability (Judge, Erez, & Bono, 1998). Self-efficacy relates positively to Extraversion and negatively to Neuroticism (Thoms, Moore, & Scott, 1996), and self-esteem relates positively with positive affect and negatively with negative affect (Brown & Dutton, 1995).

Not surprisingly, the validity and distinguishability of many of these traits has been called into question. Judge, Locke, and Durham (1997) suggested that positive affect may be synonymous with life satisfaction or self-esteem. Optimism has been criticized for lacking discriminant validity with Neuroticism, locus of control, self-efficacy (Judge et al., 1997), Extraversion, positive affect (Schwarzer, 1994), and self-esteem (Cozzarelli, 1993). The strong and abundant relationships among these personality traits and between these traits and various measures of adaptive human functioning suggest a broad, underlying dimension of adaptability. Specifically, people who possess one of these traits tend to possess the others as well, and also tend to be effective in and adaptable to both the changing and the enduring circumstances of life.

The primary purpose of the current study is to examine the relationships between several person variables to identify precisely how they are related to one another, where they overlap, and where they diverge. The constructs that have been chosen for investigation are self-efficacy, Extraversion, Neuroticism, positive and negative affect, locus of control, optimism, self-esteem, and emotional intelligence. These particular variables were chosen because of their established relevance to healthy human functioning and because of important unanswered questions about their conceptualization and relation to one another. Subsequent sections will briefly review the seminal and recent theoretical and empirical literature that has addressed these constructs, with particular attention to concerns regarding empirical and conceptual overlap among them.

#### Self- Efficacy and Social Cognitive Theory

Self-efficacy expectations are an individual's beliefs about his or her ability to successfully perform a particular behavior (Bandura, 1977, 1982, 1984, 1986, 1993). These expectations are important because of their capacity to predict whether an individual will attempt a task, how much effort will be exerted, and how long the individual will persist in the face of adversity. In fact, self-efficacy beliefs exert such a powerful influence over people that in some cases they are a better predictor of future behavior than are previous actions (Bandura, 1977, 1982; Locke, Frederick, Lee, & Bobko, 1984), ability (Bandura, 1984; Betz & Hackett, 1983; Lent, Brown, & Larkin, 1986), or goal levels (Phillips & Gully, 1997). Bandura (1977) originally developed a comprehensive theory of self-efficacy that subsequently has been applied to a wide variety of domains, including psychological adjustment (Magaletta & Oliver, 1999), career choice and pursuits (Lent, Brown, & Hackett, 1994), work-related behavior (Sadri & Robertson, 1993; Stajkovic & Luthans, 1998),

psychological counseling (Larson, 1998), academic success (Lent, Brown, & Larkin, 1984, 1986; Wood & Locke, 1987), social skills (Bradley & Betz, 1999), and health behavior and physical functioning (Holden, 1991; Mihalko, McAuley, & Bane, 1996). Self-efficacy is an important element of the broad and comprehensive social cognitive theory (Bandura, 1986, 1989, 1999).

Social cognitive theory is described by Maddux (1995) as “an approach to understanding human cognition, action, motivation, and emotion that assumes that people are capable of self-reflection and self-regulation and that they are active shapers of their environments rather than simply passive reactors to them” (p. 4). The basic premise of social cognitive theory is that human functioning can be explained by a model in which human behavior, personal cognitions, and environmental events all reciprocally influence one another (Bandura, 1986). Bandura outlined the theory in terms of basic human capabilities that stem from this model of triadic reciprocal causation. First of all, humans have the capacity to use symbols in altering, adapting to, and creating meaning from their environment. They can test possible courses of action symbolically before acting, allowing them to make estimations of the effectiveness of various behavioral routes rather than having to constantly resort to tedious trial and error. Secondly, people have the capacity for forethought, which follows directly from symbolic activity. They can use their expectations about future events and goals regarding what they hope to achieve to guide their current behavior, rather than simply reacting to current situations and events. In other words, anticipated future consequences can be translated into motivators for current behavior.

A third human capability that is part of the foundation of social cognitive theory is the capacity for vicarious learning (Bandura, 1986). Humans can achieve substantial learning by

observing others' behavior and the consequences of that behavior. As with the capacity for symbolic thought, this allows people to make judgments about effective behavior without the continual use of trial and error. Bandura maintains that this human ability is vital for development and even survival, as many mistakes that might be made if it were not for vicarious learning could prove fatal. Social cognitive theory also emphasizes the capability for self-regulation. Behavior is not dictated solely by the evaluations of others, but also by internal standards and expectations. Although external reinforcements influence behavior as well, an individual's beliefs about appropriate and acceptable action and expectations regarding his or her own actions have a substantial influence on behavior. A related capability is self-reflection, which involves meta-cognitions and evaluation of personal experiences. People think about their thoughts, and evaluate how well their thoughts have served them in their daily lives.

An important part of self-reflection is self-efficacy. As stated above, self-efficacy expectations are basically an individual's beliefs about his or her ability to successfully complete a task or activity (Bandura, 1977, 1986). More recently, the definition of self-efficacy has been expanded to include a general belief in one's ability to successfully handle or control important events in life (Bandura, 1989). These beliefs both influence and are affected by the individual's behaviors in a variety of situations as well as environmental conditions and events.

Self-efficacy beliefs are derived from four primary sources of information: mastery experiences, vicarious experiences, verbal persuasion, and physiological arousal (Bandura, 1977, 1982, 1999). Mastery experiences, the most powerful of these four sources, are simply successful performances of the behaviors under consideration. When individuals have the

experience of completing a task to a satisfactory level, they are much more likely to believe they can do it again. Conversely, when an individual experiences failure at a particular task, his or her self-efficacy decreases. Self-efficacy can also be affected by vicarious experiences, or observing someone performing the behavior successfully. This is especially effective when the model is perceived as being similar to the individual, producing the “If she can do it, I can do it!” sentiment. Verbal persuasion, or encouragement by others, can have an impact on self-efficacy as well. Finally, people can derive information about their abilities from physiological arousal; for example, excessive nervousness or physical fatigue is usually interpreted as a sign that one does not have the ability to complete the task, and therefore reduces self-efficacy expectations.

The potency of mastery experiences as a source of efficacy information has been well established empirically (Campbell & Hackett, 1986; Hackett & Campbell, 1987; Lent et al., 1994; Lent, Lopez, & Bieschke, 1991; Mihalko et al., 1996). Campbell and Hackett (1986) found dramatic effects on self-efficacy of either success or failure on a number sequence task. Specifically, those who succeeded showed increased efficacy after the first success and further increased efficacy after the second success; the opposite pattern of results was found for those who failed. These results were replicated with a word anagram task (Hackett & Campbell, 1987). However, support for the other three sources of efficacy information is less convincing. Lent et al. (1991) have suggested that they may only be important in situations in which direct evidence of one’s capabilities (i.e., mastery experiences) is not available; in fact, Matsui, Matsui, and Ohnishi (1990) found verbal persuasion to make no unique contribution to performance beyond the influence of mastery experiences. When

mastery experiences are present, information obtained from the other sources may be largely redundant.

In addition to efficacy expectations, self-efficacy theory includes the component of outcome expectations (Bandura, 1977, 1984). Whereas efficacy expectations are the individual's beliefs about his or her ability to execute the behaviors necessary to complete the task, outcome expectations are the beliefs a person has regarding the result of his or her behavior. For example, an employee may believe that although he has the ability to do his job well, his boss doesn't appreciate him and won't recognize his accomplishments. Therefore, he may choose not to put forth effort in his work because even though he has high efficacy expectations, his outcome expectations are quite low. Outcome expectations can be largely influenced by efficacy expectations in situations in which outcomes are closely linked to the quality of performance (Bandura, 1986). In addition, it has been shown that the impact of efficacy beliefs on behavior is stronger when outcome expectations are high (Lent et al., 1991). Although both efficacy and outcome expectations have important influences on behavior, efficacy expectations are generally thought to be more potent (Bandura, 1986).

Self-efficacy expectations vary on three primary dimensions that also affect behavior (Bandura, 1977). The first is magnitude, or level of difficulty to which the individual feels confident of success. Second is generality, or the range of activities to which self-efficacy expectations extend. In some cases, mastery experiences may produce efficacy beliefs for a particular task but have no effect on efficacy for other tasks; in other cases increased efficacy beliefs may generalize to increased efficacy in unrelated tasks for which there have been no direct success experiences. Thirdly, self-efficacy expectations vary in strength, or the extent

to which these beliefs persist in spite of failure experiences. All of these dimensions can affect the degree to which sources of efficacy information affect efficacy beliefs.

Bandura (1977, 1999) also noted that the impact on efficacy expectations of any of the four sources of information depends on the manner in which the information is interpreted by the individual. For example, some people may be energized and emboldened by verbal encouragement while others dismiss it outright. In analogous conditions, one individual may identify with and gain confidence from the success of a model and another may not. Even direct success experiences may fail to increase self-efficacy if the individual attributes the achievement to external factors such as luck or the help of others rather than to his or her own ability. For example, Campbell and Hackett (1986) found that women were more likely than men to attribute success on a math-related task to luck, and persisted in rating their ability lower than men did even after identical success experiences. Self-efficacy is mostly likely to be strengthened by repeated experiences of success with a task that are reinforced and that occur under various conditions (Lent et al., 1994). Other factors that affect people's attributions regarding success experiences include task difficulty, effort expended, assistance received, emotional and physical state, and rate of improvement over time (Bandura, 1999). With regard to failure, some individuals exhibit more resiliency in their self-efficacy than others. Specifically, people who attribute failure to lack of effort maintain high self-efficacy, but when people who attribute failure to lack of ability fail, their self-efficacy plummets (Bandura, 1993).

Although self-efficacy is certainly malleable, there is evidence that efficacy beliefs are resistant to change. Alden (1986) found that social feedback that was inconsistent with efficacy expectations was more likely to be attributed to external factors, whereas feedback

that was consistent with efficacy beliefs was more likely to be attributed to internal characteristics. For example, individuals with low self-efficacy for social situations credited positive evaluations of their social performance to the Agreeableness of the setting or the friendliness their partner; because of this, positive feedback had little effect on their low self-efficacy.

Career self-efficacy. Vocational behavior is one of the areas in which the application of self-efficacy theory has received a large amount of theoretical and empirical attention (Lent et al., 1994; Lent & Hackett, 1987). Hackett and Betz (1981) first suggested that self-efficacy might be important in understanding career development, specifically impacting academic achievement, career choices, and career adjustment. Since then, various forms of career-related self-efficacy have been found to be robustly predictive of choice and success in academic and vocational domains (Betz & Hackett, 1986; Lent et al., 1994; Multon, Brown, & Lent, 1991; Sadri & Robertson, 1993). For example, self-efficacy for the six Holland (1997) themes has been reported to predict occupational choice; specifically, individuals' confidence is highest for the Holland theme corresponding to their job (Donnay & Borgen, 1999; Harmon et al., 1996). Strong efficacy beliefs can be facilitative of career choice, but weak efficacy beliefs can be barriers to choice (Betz & Hackett, 1997).

Efficacy expectations are also related to occupational interests, such that people develop interests in activities about which they feel efficacious (Betz & Hackett, 1981; Lent et al., 1994; Lent et al., 1986; Lent, Larkin, & Brown, 1989; Lent et al., 1991). In fact, self-efficacy and interests mutually influence one another; self-efficacy leads to greater interest in an activity, which in turn leads to interest-related goals and increased involvement in that activity. Increased involvement leads to more success experiences, which boosts self-



efficacy. Although self-efficacy and interests are generally correlated, there is ample evidence that the two are separate constructs, and that self-efficacy contributes to the prediction of various vocationally-related behaviors independent of interests (Campbell & Hackett, 1986; Donnay & Borgen, 1999; Hackett & Campbell, 1987; Lent et al., 1989). Outcome expectancies have been shown to be related to interests as well (Lent et al., 1991), and it has been posited that a combination of efficacy and outcome expectancies should predict interests better than self-efficacy does alone (Lent et al., 1994).

Career self-efficacy has been shown to be especially important in understanding women's career development (see Phillips & Imhoff, 1997). Betz and Hackett (1981) were the first scholars to examine this area of inquiry; they found women to have lower efficacy expectations than men for traditionally masculine occupations and higher efficacy expectations than men for traditionally feminine occupations, whereas no differences were evident in men's efficacy expectations for masculine and feminine occupations. In regression analyses they found that consideration of occupational alternatives was predicted by gender, self-efficacy, and vocational interest, but not by ability. Although self-efficacy is a personal estimation of ability, research has shown that measurements of self-efficacy and ability on a particular domain are often only moderately and inconsistently related (Lent et al., 1984, 1986; Swanson & Lease, 1990). Self-efficacy has been described as more important than ability in the prediction of performance (Lent et al., 1994); in one study, math aptitude scores were shown not to contribute to the prediction of major choice at all (Betz & Hackett, 1983).

It has also been demonstrated that women have lower efficacy expectations for traditionally male content domains, such as mathematics (Betz & Hackett, 1983; Campbell &

Hackett, 1986; Lent et al., 1991; Matsui et al., 1990) and mechanical ability (Swanson & Lease, 1990). Betz and Hackett (1983) found math self-efficacy to be the strongest predictor of choice of a math-related major; women's lower math efficacy is reflected in their underrepresentation in such majors. These findings and those of Betz and Hackett (1981) have been explained by the influences of gender role socialization; women's range of career self-efficacy may be narrower than men's primarily because of gender differences in Bandura's (1982) sources of efficacy information (Hackett & Betz, 1981). Specifically, boys and girls are likely to have differential access to mastery experiences, role models, and verbal persuasion in task domains related to occupations that are traditionally considered to be masculine or feminine. These differences in experience lead to differences in self-efficacy, which in turn contribute to the underrepresentation of women in more prestigious, male-dominated careers (Betz & Hackett, 1997). Low self-efficacy among women has also been cited as an important internal (psychological) barrier to career development, as well as a contributor to the potency of external barriers (Hackett & Betz, 1981). Specifically, external barriers (e.g., discrimination, sexual harassment, poor social support) can only be overcome with the help of a strong sense of self-efficacy.

Gender differences have been reported in self-efficacy for the six Holland (1997) themes as well (Betz, Borgen, & Harmon, 1996; Betz, Harmon, & Borgen, 1996; Parsons & Betz, 1998; Swanson & Lease, 1990). Betz, Harmon, and Borgen (1996) found that college men reported more confidence than college women in the Realistic, Enterprising, Investigative, and Conventional themes. Employed adult men reported more confidence than employed adult women in the Realistic and Enterprising themes. College women reported more confidence than college men only for the Social theme; there was no theme for which

employed adult women reported more confidence than employed adult men. However, very few gender differences in confidence were found within occupational group; the small differences that were found were for confidence areas other than the one characterizing their occupation. Using a slightly different approach, Swanson and Lease (1990) found that college men rated themselves and their same-sex peers higher than college women rated themselves and their same-sex peers only on the Realistic theme. Women rated themselves and their same-sex peers higher than men rated themselves and their same-sex peers only on the Social theme. Overall, women tended to rate their peers higher than they rated themselves, whereas men tended to rate their peers lower than they rated themselves.

In addition to gender, self-efficacy can be affected by factors associated with ethnicity and socioeconomic status (Lent et al., 1994). Specifically, these issues can impact access to quality education, which can greatly affect an individual's opportunities for exposure to various academic and career-related domains. In addition, cultural factors influence which activities are reinforced and which ones are discouraged, as well as the types of role models to whom an individual is exposed.

In the area of academic achievement, self-efficacy has been found to account for 14% of the variance in performance and 12% of the variance in persistence (Multon et al., 1991). Within science and engineering majors, students with greater confidence in their ability to successfully complete academic requirements in these areas earn higher grades and are more persistent in their majors (Lent et al., 1984). Self-efficacy predicts academic performance, persistence, and range of career options considered even after controlling for other variables such as ability and vocational interests (Lent et al., 1986). Self-efficacy has also been found to be a more important predictor of grades and retention than other theoretically viable

variables such as congruence between interests and major, and anticipation of consequences in decision-making (Lent, Brown, & Larkin, 1987).

Math self-efficacy, more specifically, predicts selection of science-based college majors; as stated above, math self-efficacy has also been found to be stronger in college men than in college women, corresponding to the gender difference in representation in science-related majors (Betz & Hackett, 1983). However, studies that focus on students in science-related majors have often failed to find gender differences in self-efficacy regarding the tasks of their major (e.g., Lent et al., 1984), suggesting that women who pursue these majors do so because of their higher levels of self-efficacy. In a study of Japanese undergraduates who had passed the highly selective entrance exam, Matsui et al. (1990) found only modest gender differences in math self-efficacy, and no significant gender differences in the four sources of efficacy information. Similarly, gender differences in self-efficacy for a math-related task diminish when men and women have the same success experiences in a controlled environment (Campbell & Hackett, 1986), and in a general college population, gender differences in math self-efficacy disappear when differential efficacy-building experiences are controlled (Lent et al., 1991). Gender differences in math self-efficacy also disappear when the task involves stereotypically feminine activities, such as mentally calculating a grocery bill (Betz & Hackett, 1983). Interestingly, Campbell and Hackett (1986) found that women's self-efficacy was more strongly affected by both success and failure on a math-related task experiences than men's; this could be because the women had fewer past experiences in mathematics with which to make their efficacy judgments.

A specific career domain that has recently received attention with regard to self-efficacy is psychological counseling (Larson, 1998). Although this is a relatively new area of

inquiry, research has demonstrated that counseling self-efficacy relates to counselor performance, counselor anxiety, and the supervision environment (see Larson & Daniels, 1998, for a comprehensive review). Larson (1998) developed a social cognitive model of counselor training, which locates counseling self-efficacy within the larger framework of social cognitive theory. The personal agency of the counselor and the counselor's behaviors operate within the context of the stable, individual characteristics of the counselor; the larger sociocultural environment forms the larger context in which triadic reciprocity between personal agency, behavior, and environmental factors takes place. In this model, self-efficacy, through mediating factors such as affective and motivational cognitive processes, is predicted to be the primary causal mechanism by which effective counseling does or does not occur. Because this theory was only recently developed, it has not yet been fully tested empirically.

Self-efficacy and performance. As has already been suggested, self-efficacy has wide-reaching implications for an individual. According to Bandura (1984, 1993), people who regard themselves as highly efficacious think, feel, behave, and motivate themselves in different ways than do those who perceive themselves as inefficacious. The most productive efficacy beliefs are those that slightly exceed one's current skill level (Bandura, 1986). If individuals believe they are slightly more capable than they really are, then they will be willing to take on challenges that will allow for skill development. If one has a highly accurate sense of self-efficacy, he or she is less likely to attempt new behaviors, and there is little opportunity for growth or improvement. Efficacy beliefs that are grossly inaccurate can be very unproductive, because they lead people either to attempt activities at which they are

highly likely to fail (in the case of inflated self-efficacy), or to avoid tasks that are well within their range of competency (in the case of low self-efficacy).

Self-efficacy has been shown to predict performance in a variety of settings and situations (Lent et al., 1994; Stajkovic & Luthans, 1998). For example, self-efficacy has been reported to relate positively to managerial performance (Wood, Bandura, & Bailey, 1990), learning in a computer software training course (Martocchio & Judge, 1997), newcomer adjustment to an organizational setting (Saks, 1995), skills acquisition (Mitchell, Hopper, Daniels, George-Falvey, & James, 1994), and naval performance at sea (Eden & Zuk, 1995). Overall, meta-analytic findings suggest a 28% gain in performance due to self-efficacy (Stajkovic & Luthans, 1998); a meta-analysis focusing on academic performance specifically found self-efficacy to account for 14% of the variance (Multon et al., 1991). The relationship between self-efficacy and performance is moderated by task complexity, such that it is stronger for simple tasks and weaker for more complex tasks (Stajkovic & Luthans, 1998). It is also moderated by student achievement, such that it is stronger for low achievers than for average achievers (Multon et al., 1991). Of course, performance, in turn, has an effect on self-efficacy in the form of mastery experiences (Bandura, 1982; Lent et al., 1994); in fact, some research has shown past performance to predict self-efficacy more strongly than self-efficacy predicts future performance (Locke et al., 1984).

The characteristics of a learning environment have been shown to relate to the development and strengthening of self-efficacy, which in turn predicts academic success (Bandura, 1993). First of all, a learning environment that construes ability as an acquirable skill rather than as an inherent characteristic promotes a sense of self-efficacy. Wood and Bandura (1989) found that when individuals struggled with a simulated organizational

management task, those who had been told that success reflected an acquirable intellectual skill performed much better than those who had been told that success reflected an inherent intellectual capacity. Specifically, when experiencing difficulties in the task, the former group retained their sense of efficacy, continued to set challenging goals for themselves, and used effective problem-solving strategies, whereas the latter group's perceived efficacy plummeted, they focused on their deficiencies, lowered their expectations, and were less successful. Other characteristics of a learning environment that promote self-efficacy include de-emphasis of competitive social comparison, emphasis on personal mastery or self-comparison of progress, and feedback that emphasizes progress and achievement rather than shortcomings (Bandura, 1993).

Self-efficacy also has an impact on goal-setting, such that individuals with higher self-efficacy set higher and more specific goals for themselves and are more committed to their goals, which leads to higher performance (Locke et al., 1984; Phillips & Gully, 1997; Wood & Bandura, 1989; Wood & Locke, 1987). In addition, people with high self-efficacy visualize anticipatory scenarios of success, whereas people with low self-efficacy visualize failure scenarios and dwell on what could go wrong (Bandura, 1993). However, self-efficacy also has a direct impact on performance independent of the effects of ability and goal level (Locke et al., 1984).

Self-efficacy has an interesting relationship with goal orientation as well. Individuals who set performance- or recognition-oriented goals tend to have much lower self-efficacy than those who set learning- or mastery-oriented goals (Phillips & Gully, 1997). However, when participants are randomly assigned to conditions, those with low self-efficacy perform more poorly with performance-oriented goals than with mastery-oriented goals, whereas

those with high self-efficacy perform equally well in either condition (Stevens & Gist, 1997). Furthermore, in the mastery-oriented condition low- and high-self efficacy participants perform equally well. However, low self-efficacy participants worry more about their performance than high self-efficacy participants do regardless of goal-orientation.

Generalized self-efficacy. Bandura (1977) originally conceived of self-efficacy as task-specific, and continues to maintain that it is a dynamic, multifaceted belief system that varies across situations and activities (Bandura, 1999). Indeed, there is evidence for within-individual differences between self-efficacy domains (Lent et al., 1986), and measures of task-specific self-efficacy are generally found to be more powerful than more general measures when specific behaviors are the focus of investigation (Lennings, 1994; Maddux, 1995; Slinger & Rudestam, 1997). For example, career decision-making self-efficacy specifically is associated with less career indecision (Taylor & Betz, 1983), but more general measures of academic self-efficacy have been shown to have no relationship with career indecision (Lent et al., 1987).

However, there is also substantial support for the conceptualization of self-efficacy as a generalized dispositional variable (Gist & Mitchell, 1992; Judge, Thoresen, Pucik, & Welbourne, 1999; Lennings, 1994; Sherer & Adams, 1983; Sherer et al., 1982; Tipton & Worthington, 1984). In other words, although self-efficacy does vary somewhat from one situation to another, there is also a relatively stable tendency for some individuals to feel more efficacious than others across a variety of diverse tasks and behaviors; this may be related to an individual's belief that he or she can master new situations (Gist, 1987). Tipton and Worthington (1984) found a measure of generalized self-efficacy to predict effort expended, perseverance, and success in two unrelated tasks.



Judge, Locke, and Durham (1997) further developed the concept of generalized self-efficacy, which they defined as an individual's confidence in his or her abilities to summon the motivation, cognitive resources, and courses of action necessary to maintain general control over life events. Judge, Locke, Durham, & Kluger (1998) found generalized self-efficacy to be predictive of life satisfaction and job satisfaction. They also suggested that generalized self-efficacy should be related to an average of diverse task-specific self-efficacy scores. To date, only Betz and Klein (1996) have explored such a relation. They reported significant correlations between generalized self-efficacy and the average of confidence scores for the six Holland themes for both women and men, although the relationship was stronger for men than for women. In addition, they found significant correlations between generalized self-efficacy and self-efficacy for each of the Holland themes for men; for women, they found that generalized self-efficacy was related significantly only to the Investigative, Social, Enterprising, and Conventional themes.

Self-efficacy and personality. The relationship between self-efficacy and personality has been described as an important one that has been neglected by research (Borgen, 1999). Self-efficacy has been shown to relate to personality variables in several specific contexts, but a more general conceptualization of their overlap has yet to be clarified. Wooten (1991) found that personality traits influence individuals' job acceptance behavior differently depending on their levels of self-efficacy, and Cozzarelli (1993) found self-efficacy to mediate the relationship between personality characteristics and coping with abortion. Major, Richards, Cooper, Cozzarelli, and Zubek (1998) referred to self-esteem, perceived control, and optimism as "resilient personality resources" (p. 746), and found that possessing more of them was related to higher self-efficacy for coping with an upcoming abortion; self-

efficacy, in turn, was related to less post-abortion distress. Self-efficacy for participating in a self-managed work group relates negatively to Neuroticism and positively to Extraversion, Conscientiousness, and Agreeableness, although Agreeableness does not explain a significant amount of variance beyond that accounted for by the other three factors (Thoms et al., 1996). Interestingly, generalized self-efficacy has been shown to relate only to Extraversion among the Big Five factors (Bernard, Hutchison, Lavin, & Pennington, 1996).

Self-efficacy has also been shown to relate to perfectionism, such that high levels of self-oriented perfectionism (setting high standards for oneself) and other-oriented perfectionism (setting unrealistic standards for others) are associated with low self-efficacy, but high levels of socially-prescribed perfectionism (belief that significant others have unrealistic standards for oneself) are associated with high self-efficacy (Hart, Gilner, Handal, & Gfeller, 1998). Self-efficacy also has a small relationship with personality disorders, specifically the avoidant, dependent, histrionic, and schizotypal personality disorders (Sinha & Watson, 1997).

Another characteristic that has been shown to relate to self-efficacy is sensation seeking (Slanger & Rudestam, 1997). In a study comparing individuals participating in high risk sports (relatively low likelihood of death for skilled participants) and those participating in extreme sports (relatively high likelihood of death in the case of minute error), the only variable distinguishing the two groups was self-efficacy beliefs. However, only situation-specific self-efficacy, and not generalized self-efficacy or even general physical self-efficacy, predicted group membership. This provides support for Bandura's (1977) assertion that self-efficacy is situation-specific.

Specific confidence in the various Holland (1997) themes has been shown to relate to interest in that theme (Betz, Harmon, & Borgen, 1996; Donnay & Borgen, 1999; Swanson, 1993). Although it has been suggested that self-efficacy is not conceptually distinct from interest in a particular theme (Tracey, 1997), other research has provided evidence that the two are indeed separate constructs (Betz, Harmon, & Borgen, 1996; Swanson, 1993). Confidence in the Holland themes has been shown to related to other personality-related characteristics as well (Tuel & Betz, 1998). Specifically, confidence in the Social theme is related to a preference for working with people, whereas confidence in the Realistic or Investigative theme is related to a preference for working with ideas, data, or things. Confidence in the Investigative, Artistic, Social, or Enterprising theme is related to a preference for an academic learning environment as opposed to a practical one. Confidence in the Artistic, Social, Enterprising, or Conventional theme is related to a desire to be a leader. Confidence in the Realistic, Investigative, Artistic, Enterprising, or Conventional theme is related to a preference for risk taking and adventurous activities.

### Personality-Related Constructs

#### Extraversion

Extraversion is a robust member of the Big Five factors of personality (Digman, 1990; Goldberg, 1993), which includes characteristics such as how sociable people are, how much they like people and large gatherings, and how active and talkative they are (Costa & McCrae, 1992). Extraversion has been shown to strongly predict the amount and length of social contact an individual experiences, as well as the amount of enjoyment he or she receives from social contact (Berry & Hansen, 1996). People who are high on Extraversion like excitement and stimulation, and they are generally upbeat and optimistic (Costa &

McCrae, 1992). In general, Extraversion suggests an energetic, assertive, and positive approach to the social and material world (John & Srivastava, 1999). Extraversion has been described as one of the basic traits that characterize happy people (Myers & Diener, 1995), although people who are low on Extraversion are not necessarily unhappy (Costa & McCrae, 1992). Rather than exhibiting characteristics opposite of high Extraversion, people who are low on Extraversion seem to display an absence of Extraversion. In other words, they are reserved rather than unfriendly, and independent rather than followers. They do not necessarily suffer from social anxiety, and they are not pessimistic or negative. Accordingly, Extraversion correlates positively with positive daily mood, but has no relationship with negative mood (David, Green, Martin, & Suls, 1997).

Extraversion has been shown to relate to job satisfaction in general (Tokar & Subich, 1997) and to success in several specific career roles. Barrick and Mount (1991) found that Extraversion predicted training proficiency in five occupational groups (professional, police, managers, sales, skilled/semi-skilled labor) but only predicted overall job performance for managers and sales, the two categories involving the most social interaction. Another study found that although observer ratings of Extraversion in sales representatives (performed by supervisors, co-workers, and customers) were significant predictors of job performance, self-ratings of Extraversion were not (Mount, Barrick, & Strauss, 1994). Observers may be better judges of personality factors relevant to job performance, because they see the individuals in the work setting only, whereas people experience themselves in a variety of casual and occupational settings. Extraversion was also found to be a better predictor of job performance for managers in jobs with high autonomy than those with low autonomy (Barrick & Mount, 1993). In a study of success in management positions, Melamed (1995)

found that the personality traits of independence, toughness, and Extraversion were the best predictors of salary.

In terms of vocational interests and preferences, Extraversion has been shown to relate strongly to interest in Holland's Social and Enterprising themes (Holland, Johnston, & Asama, 1994; Larson, Rottinghaus, & Borgen, 2001; Tokar & Swanson, 1995; Tokar, Vaux, & Swanson, 1995) and to preferences for leadership, working with people, and taking risks (Lindley & Borgen, 2000). Interestingly, Extraversion has been reported to relate to a preference for an academic learning environment among women but not among men. Finally, Extraversion has been shown to correlate positively with generalized self-efficacy (Bernard et al., 1996) and also with confidence in the Social and Enterprising Holland themes, but negatively with confidence in the Investigative and Conventional themes (Tuel & Betz, 1998).

### Neuroticism

Neuroticism is also one of the Big Five personality factors (Digman, 1990; Goldberg, 1993). Neuroticism contrasts emotional adjustment and stability with maladjustment, and involves characteristics such as susceptibility to psychological distress and the general tendency to experience negative emotions such as fear, anxiety, sadness, anger, and guilt. People who display a high degree of Neuroticism are more likely to have irrational ideas, to have low impulse control, to cope poorly with stress (Costa & McCrae, 1992), and to report low life satisfaction (Judge, Locke et al., 1998); they are regarded by others as nervous, moody, tense, and temperamental (Goldberg, 1993). Neuroticism is regarded by some as the opposite of self-esteem (Judge et al., 1997; Judge, Locke et al., 1998), and has been shown to relate negatively to locus of control, optimism, and Extraversion as well (Bernard et al.,

1996). However, whereas Judge and colleagues (Judge et al., 1997; Judge, Locke et al., 1998) reported a negative relationship between Neuroticism and generalized self-efficacy, others (e.g., Bernard et al., 1996) have failed to find one.

Neuroticism is related to a dependent decision-making style and inhibited problem-solving skills, which have been shown to translate into career indecision (Chartrand, Rose, Elliott, Marmarosh, & Caldwell, 1993). When people who are high on Neuroticism do make job choices, they tend to be occupations that have a set routine, are less complex, and require less independent work (Tokar, Fischer, & Subich, 1998). Interestingly, Neuroticism has been found to predict lower job satisfaction (Judge, Locke et al., 1998), but to be unrelated to job performance (Barrick & Mount, 1991).

#### Positive and Negative Affect

Positive affect is a relatively stable tendency to experience emotional states such as enthusiasm, energy, interest, alertness, and affiliation, whereas negative affect is a propensity towards feelings such as irritation, sadness, guilt, nervousness, and disgust (Watson & Clark, 1997). Positive affect is closely related to Extraversion, (see Costa & McCrae, 1992; Watson, Clark, & Tellegen, 1988) a connection that has been shown to generalize across language and culture (Allik & Realo, 1997). Factor analytic research has consistently found positive affect and Extraversion to load on a single factor (Berry & Hansen, 1996; McFatter, 1994; Meyer & Shack, 1989). However, others have shown that positive affect is predicted equally well by the Big Five dimensions of Extraversion or Agreeableness, suggesting that while positive affect stems primarily from interactions with others, both quantity and quality of relationships are important in that connection (DeNeve & Cooper, 1998). Positive affect is also related to academic self-efficacy (Lee & Bobko, 1994), generalized self-efficacy,

locus of control, and self-esteem (Judge et al., 1999). It has also been suggested that positive affect may actually be an alternative measure of life satisfaction or self-esteem (Judge et al., 1997).

Negative affect is highly related to Neuroticism (Allik & Realo, 1997; Berry & Hansen, 1996). Whereas some research has found evidence for an interaction between Extraversion and Neuroticism in predicting positive and negative affect (McFatter, 1994), other research has not supported this finding (Allik & Realo, 1997; Rusting & Larsen, 1997). In general, it has been reported that positive affect has no relation to Neuroticism and negative affect has no relation to Extraversion (Allik & Realo, 1997; Diener & Emmons, 1985; Watson et al., 1999). While it would seem intuitive that positive and negative affect would represent opposite ends of a bipolar dimension, a large body of literature that concludes they are independent constructs has accumulated (e.g., Diener, Smith, & Fujita, 1995; Watson & Clark, 1997; Watson et al., 1988), including research with other cultures and languages (Allik & Realo, 1997). In addition to their differential relations with Neuroticism and Extraversion, it has been demonstrated that positive and negative affect are relatively independent when measured over long periods of time (Diener & Emmons, 1985).

To cite a more detailed example of the ambiguity of the relation between positive and negative affect, Berry and Hansen (1996) found *both* to correlate positively with the amount of time individuals spend engaging in social activity with other individuals and groups of people, although individuals who were high on negative affect had fewer social interactions with members of the opposite sex. Positive affect predicted the general quality of people's interactions with others based on ratings by self, interaction partner, and objective observer, but no relation was found for negative affect. Individuals who were high on positive affect

were found to experience their interactions with others as more enjoyable, comfortable, and pleasant than those who are low on positive affect; those who were high on negative affect reported more enjoyable group interactions.

The exact nature of the relationship between positive and negative affect is clearly a point of contention, and in the past few years this long-standing controversy has been reignited (Feldman Barrett & Russell, 1998; Russell & Carroll, 1999; Watson & Clark, 1997; Watson & Tellegen, 1999; Watson, Wiese, Vaidya, & Tellegen, 1999). Although many researchers assert that positive and negative affect are independent dimensions (e.g., Watson & Clark, 1997; Watson et al., 1988), others have maintained that the more intuitive, bipolar solution is the correct one (e.g., Green, Goldman, & Salovey, 1993). Green et al. (1993) stated emphatically that the observed “independence of positive and negative affect is a statistical artifact” (p. 1029). They asserted that when random and nonrandom sources of error in mood measurement are accounted for, it becomes clear that positive and negative affect are largely bipolar opposites. Diener & Emmons (1985) found positive and negative affect to be moderately negatively related when short periods of time were evaluated, and most strongly so during times of intense emotion.

Ultimately, it appears that this controversy boils down to misunderstandings regarding what is actually meant by “positive affect” and “negative affect,” and differences of opinion in how they should be measured. According to Feldman Barrett and Russell (1998), the confusion has arisen out of the fact that “positive affect” as conceptualized by Watson et al. (1988) does not include all positive feeling states, as one might assume, but rather is a subset of affective states that are both pleasant and activated. Specifically, it appears that the terms “positive affect” and “negative affect” have sometimes been used to



mean “pleasantness” and “unpleasantness,” which is inaccurate. Pleasantness and unpleasantness are very different empirically from positive and negative affect, and are in fact two poles of a bipolar dimension (Watson & Tellegen, 1999).

For the explanatory purposes of this review with regard to the current study, it appears that the best way to reconcile this controversy is using the original two-dimensional diagram introduced by Watson and Tellegen (1985), in which the  $y$  axis is positive affect and the  $x$  axis is negative affect. The two axes are intersected diagonally by the dimensions of pleasantness vs. unpleasantness and strong activation vs. disengagement (also commonly referred to as high vs. low activation). High positive affect is the combination of pleasantness and high activation, whereas low positive affect is the combination of unpleasantness and low activation. High negative affect is the combination of unpleasantness and high activation, whereas low negative affect is the combination of pleasantness and low activation. Because this study is concerned with the overlap of active individual characteristics, Watson and Tellegen’s (1985; Watson et al., 1988) classic definitions of positive and negative affect best fit my purposes.

### Locus of Control

Locus of control involves an individual’s tendency to believe either that he or she generally has control over life events (internal locus of control) or that they are controlled by the environment, fate, or powerful others (external locus of control; Rotter, 1966). In general, individuals who believe they exercise control over events are more active and exert more effort in various situations than those who do not (Bandura, 1986). Locus of control has been shown to predict job satisfaction, life satisfaction (Judge, Locke et al., 1998), and individuals’ appraisals of the controllability of stressful situations such as employment

decisions and teacher bias (Peacock & Wong, 1996). Locus of control has also been shown to relate negatively to Neuroticism, and positively to self-esteem (Judge, Erez, & Bono, 1998; Judge, Locke et al., 1998), positive affect (Judge et al., 1999), general happiness (Myers & Diener, 1995), and other various aspects of psychological well-being; for example, individuals with rheumatoid arthritis experience greater depression if they believe they have little control over the illness but blame themselves for negative events such as symptom flares (Schiaffino & Revenson, 1992). Interestingly, this finding was replicated when the control construct was replaced by symptom management efficacy beliefs.

Since Rotter's (1966) original formulation of the unidimensional construct of internal vs. external control, others have suggested that locus of control is a more complex, multifaceted construct than was first suggested. Specifically, Levenson (1974, 1981) specified that an external locus of control could be either an expectation that the world is random and unordered and that events are controlled by chance, or an expectation that there is order and predictability in the world and that events are controlled by powerful others. According to Levenson (1981), this distinction is important because the latter orientation provides the possibility of at least some measure of indirect control, whereas the former offers none at all. Therefore, individuals with each of these orientations would be expected to act and react to events differently from one another. Indeed, research has provided support for the measurement of external locus of control as the two distinct orientations described above (Levenson, 1974). Although measures of expectations of control by chance and by powerful others are moderately correlated with one another, factor analysis provides support for conceptualization of them as distinct. Furthermore, neither the Chance scale nor the

Powerful Others scale measures the opposite of internal locus of control, suggesting three separate orientations.

Locus of control is similar to the outcome expectations component of self-efficacy theory in that it is related to control of outcomes rather than ability to perform certain behaviors (Bandura, 1986; Maddux, 1995). Locus of control has been shown to be strongly related to generalized self-efficacy (Judge, Erez, & Bono, 1998; Judge, Locke, et al., 1998; Lennings, 1994; Phillips & Gully, 1997); in fact, it has been suggested that locus of control may be a less exact measure of the construct of generalized self-efficacy (Judge et al., 1997). Like individuals who have high self-efficacy, those who perceive they have control exert more effort in trying to cope with difficult situations (Aspinwall & Taylor, 1992). However, perceptions of control have been shown to contribute uniquely to adjustment (Cozzarelli, 1993), and it has been suggested that task-specific self-efficacy and locus of control are quite different from one another (Judge, Locke et al., 1998).

According to Gist (1987), locus of control may influence individuals' interpretations of Bandura's (1977, 1982) sources of efficacy information. Specifically, fewer mastery experiences may be required to improve the self-efficacy of people with an internal locus of control and they may respond more positively to vicarious experiences because they tend to believe that they, like the models, generally have control over life events. Conversely, individuals with an external locus of control may attribute personal success experiences to luck and the success of others to personal attributes they believe they themselves do not possess. Indeed, it has been demonstrated that attributing performance to factors under one's control leads to higher self-efficacy than attributing performance to external factors (Martocchio & Dulebohn, 1994), and that locus of control has a modest moderating effect on

the relationships between math self-efficacy and modeling, verbal persuasion, and emotional arousal (Matsui et al., 1990).

### Self-esteem

Self-esteem refers to an individual's self-liking, self-acceptance, and self-respect (Judge et al., 1997). Individuals who have high self-esteem respect themselves and believe they have worth as human beings, but do not necessarily consider themselves superior to others (Rosenberg, 1965). Conversely, low self-esteem is characterized by feelings of dissatisfaction with and even contempt for the self. Self-esteem is generally characterized as a stable aspect of personality, as opposed to feelings of self-worth, which can change depending on the situation (Brown & Dutton, 1995). However, the two are linked such that self-esteem includes the capacity to respond to events in ways that are protective of feelings of self-worth. For example, Brown and Dutton (1995) found that low self-esteem individuals experienced a more pronounced drop in their feelings of self-worth following a failure than did high self-esteem individuals. Although individuals with low self-esteem have been shown to evaluate their performance more poorly than high self-esteem individuals in both failure and success situations, when self-evaluations of performance were held constant across the two groups, the effect of self-esteem was most pronounced for those who evaluated themselves most harshly.

Self-esteem is distinct from self-efficacy in that it pertains to evaluations of self-worth rather than personal capabilities (Bandura, 1984). However, there is reason to believe self-esteem would be related to generalized self-efficacy, because individuals' estimations of self-worth naturally incorporate their beliefs regarding their abilities to handle and cope with challenging events in their lives (Judge, Erez, & Bono, 1998; Maddux, 1995). Indeed, strong

correlations have been reported between self-esteem and generalized self-efficacy (Bernard et al., 1996; Judge, Erez, & Bono, 1998; Judge, Locke et al., 1998); in addition, measures of general self-efficacy have been shown to be highly influenced by self-esteem, such that those with high self-esteem are more likely to endorse items regardless of content (Tracey, 1997). Self-esteem can also influence performance, because individuals with low self-esteem often overgeneralize the negative implications of failure (Brown & Dutton, 1995). In addition, low self-esteem individuals tend to make internal, stable, and global attributions for failure and external, unstable, and specific attributions for success, whereas high self-esteem individuals show the opposite pattern (Haugen & Lund, 1998). As a result, the self-efficacy, and therefore the future performance, of people with low self-esteem is more negatively affected by failure than is the self-efficacy and future performance of those with high self-esteem. Self-esteem can be influenced by social comparison, such that the conclusions one draws based on comparing his or her performance to the performance of others can have implications for estimations of self-worth (Bandura, 1993).

Self-esteem is also distinct from self-efficacy in the sense that self-esteem is inherently evaluative but self-efficacy is not (Gist & Mitchell, 1992). In other words, individuals' beliefs regarding their abilities in domains they do not value do not enter into their evaluations of themselves, and therefore do not affect their overall sense of worth, or self-esteem (Judge, Erez, & Bono, 1998; Maddux, 1995). As a result, self-efficacy for a behavior that does not contribute to the individual's evaluation of self-worth should not be empirically related to self-esteem. Interestingly, gender differences have been found in the relationship between self-esteem and self-efficacy (Swanson & Lease, 1990). Specifically, confidence in the Social and Enterprising Holland themes correlated with self-esteem for

women, but for men no significant relationships were found between self-esteem and confidence in any of the Holland themes.

Self-esteem predicts job satisfaction and life satisfaction (Judge, Locke et al., 1998), and has been named as one of the key characteristics of happy people (Myers & Diener, 1995). Self-esteem has been shown to correlate positively with positive affect, Extraversion, optimism, and locus of control, and negatively with negative affect and Neuroticism (Bernard et al., 1996; Brown & Dutton, 1995; Judge, Erez, & Bono, 1998; Judge, Locke et al., 1998; Judge et al., 1999). In fact, it has been suggested that self-esteem may not be distinct from positive affect (Judge et al., 1997), or alternatively, that self-esteem may be a primary source of positive affect (Judge, Locke et al., 1998). Other research, however, calls into question the simplicity of this interpretation (see Campbell & Lavalley, 1993; Kernis, 1993). In stressful situations, individuals with high self-esteem are able to react in more self-protective ways than those who have low self-esteem (Cozzarelli, 1993). Low self-esteem is a substantial predictor of personality disorders, especially borderline and schizotypal (Sinha & Watson, 1997).

### Optimism

Dispositional optimism has been defined as the tendency to expect that events will turn out positively and that desired outcomes will occur (Scheier & Carver, 1985, 1987), and has been conceptualized by some (e.g., Costa & McCrae, 1992) as a facet of Extraversion. Optimism has been shown to relate to persistence in the face of failure (Carver & Scheier, 1981), lower reporting of physical symptoms of anxiety (Scheier & Carver, 1985), and general physical and psychological well-being (Magaletta & Oliver, 1999). Seligman (1991) developed the concept of “learned optimism,” which he regards as essential to the attainment

of happiness and success in life. Indeed, there is evidence that individuals who are high on dispositional optimism dwell less on negative emotions and report higher quality of life than do pessimistic individuals (Scheier et al., 1989), perform better in academic situations (Lee, Ashford, & Jamieson, 1993), and are generally happier people (Myers & Diener, 1995).

Optimism is also related to constructive strategies to deal with stressors (Aspinwall & Taylor, 1992; Cozzarelli, 1993; Scheier, Weintraub, & Carver, 1986). A composite measure including optimism, self-esteem and global perceived control has been shown to predict better mental health and constructive coping strategies during unemployment (Wanberg, 1997). Using a checklist method, Scheier et al. (1986) found that optimistic individuals cope better with both controllable and uncontrollable stressful events, using problem-focused coping and positive reinterpretation in controllable situations and adapting through acceptance or resignation in uncontrollable situations. These findings were replicated when participants were asked to generate their own coping strategies; in addition, it was found that optimists were more likely to seek social support, develop elaborate plans for coping, and suppress activities that competed in their efforts to deal with stressors. Pessimists, on the other hand, tended to focus on their negative feelings and disengage themselves from the goal with which the stressor was interfering. Pessimism (the bipolar opposite of optimism) is related to personality constructs such as irritability, anger/hostility, anxiety (Lee et al., 1993), and Neuroticism (Scheier, Carver, & Bridges, 1994), and to several personality disorders, including obsessive-compulsive and antisocial (Sinha & Watson, 1997).

A large body of literature has addressed the relationship between health-promoting behavior and optimism (see Scheier & Carver, 1992). For example, Scheier et al. (1989) found dispositional optimism to have a broad effect on coronary artery bypass surgery

patients' physical well-being and recovery, both during and after surgery. Before surgery, optimists reported being less hostile, dwelling less on negative emotions, and were more likely to be making plans for recovery. Six months after surgery, optimists had a higher self-reported quality of life. However, Scheier et al. (1989) found specific expectations about post-operative functioning to be better predictors of specific outcomes than was dispositional optimism.

Schwarzer (1994) has made a distinction between defensive and functional optimism, the former consisting of unrealistic, naïve positive beliefs about the future, and the latter involving beliefs about one's ability to cope with future events and obtain a favorable outcome. Specifically, he asserts that whereas functional optimism encourages health-promoting behavior, defensive optimism discourages it. Functional optimists believe good things will happen (and bad things won't) *if they do their part*; defensive optimists believe good things will happen no matter what. However, others have questioned the validity of the construct of defensive optimism (Carver & Scheier, 1994).

Some researchers (e.g., Judge, Erez, & Bono, 1998) have shied away from the examination of dispositional optimism because of concerns regarding its measurement and conceptualization (see Lee et al., 1993; Smith, Pope, Rhodewalt, & Poulton, 1989). Specifically, it has been criticized for lacking discriminant validity with Neuroticism, locus of control, self-efficacy (Judge et al., 1997), Extraversion, positive affect (Schwarzer, 1994), and self-esteem (Bernard et al., 1996; Cozzarelli, 1993). For example, considerable research (e.g., Scheier et al., 1994; Smith et al., 1989) has demonstrated that the relationship between optimism and reporting of physical symptoms disappears when anxiety and Neuroticism are



taken into consideration. Schwarzer (1994) found optimism and self-efficacy to relate similarly to a wide variety of variables pertaining to coping, health, and emotions.

Schwarzer (1994) has further muddled the situation by conceptualizing functional optimism as consisting of the components optimistic explanatory style, dispositional optimism, and self-efficacy, all of which overlap dramatically with other variables under consideration here. Specifically, optimistic explanatory style is the attributional pattern exhibited by individuals with high self-esteem, which involves making internal, stable, and global attributions for positive events. Furthermore, Schwarzer (1994, 1999) uses the term “outcome expectancies,” a central component of self-efficacy theory, interchangeably with dispositional optimism.

In spite of problematic conceptual and empirical overlap, distinctions between optimism and other personality constructs continue to be maintained by theoretical arguments and research support (Aspinwall & Taylor, 1992; Lee et al., 1993; Magaletta & Oliver, 1999; Peacock & Wong, 1996; Scheier & Carver, 1985; Scheier et al., 1994). Peacock and Wong (1996) found optimism and locus of control to contribute independently and almost equally to the prediction of appraisals of the controllability of stressful situations, and Scheier et al. (1994) found dispositional optimism to predict constructive coping strategies even after controlling for other theoretically viable variables such as self-esteem and Neuroticism. Aspinwall and Taylor (1992) reported that although the effects of self-esteem and locus of control on adjustment to college were fully explained by mood and coping strategies, optimism continued to exert a direct influence on adjustment even after controlling for mood and coping. Conceptually, Carver and Scheier (1994) maintain that optimism is clearly distinct from self-efficacy and adds explanatory power beyond that of

self-efficacy. Schwarzer (1994) himself acknowledged that the term “optimistic explanatory style” is problematic, as attributions are implicitly retrospective and optimism by definition involves beliefs about future events.

### Emotional Intelligence

The concept of emotional intelligence was first formally introduced by Salovey and Mayer (1990), who defined it as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (p. 187). In other words, emotional intelligence focuses specifically on the recognition and use of emotional states to solve problems and regulate behavior. Salovey and Mayer (1990) identified three general processes that fall under the rubric of emotional intelligence: appraisal and expression of emotion, regulation of emotion, and utilization of emotion. Appraisal and expression of emotion involves, first of all, the ability to identify one’s own emotions and then to effectively express them through verbal and/or nonverbal means. Appraisal and expression of emotion also involves the ability to correctly perceive the emotions of others, and to experience and express empathy for others. These abilities have been regarded as a central component of emotional intelligence (Mayer & Geher, 1996; Mayer & Salovey, 1993). Salovey and Mayer (1990) suggested that the perception of one’s own and others’ emotions may be highly interrelated, such that the two capacities may not exist without the other. These two abilities allow an individual to make more effective decisions about the best course of action in various situations.

Regulation of emotion is conceptualized in terms of both self and others as well (Salovey & Mayer, 1990). Regulation of one’s own emotions can be done through first gathering information about the situations and individuals that elicit various emotions, and

then making conscious decisions about what situations to be in and what associates to choose. One can also regulate emotions through the way he or she evaluates a particular mood or emotion. For example, a negative mood that is perceived as unacceptable and long-lasting will be much more debilitating than one that is perceived as reasonable and temporary. Emotionally intelligent individuals can regulate the emotions of others as well, both positively and negatively. For example, a charismatic speaker can motivate and inspire others, and a caring associate can encourage and boost the morale of someone who is down. Conversely, people can manipulate others' emotions maliciously if they so choose.

Salovey and Mayer (1990) described four main ways in which individuals can utilize emotion in order to deal with difficult situations and solve problems; flexible planning, creative thinking, mood redirected attention, and motivation. Specifically, shifts in mood may allow people to be flexible in thinking about the future and consider a wider range of likely outcomes. Mayer and Salovey (1993) suggested that individuals who experience substantial mood swings may have higher emotional intelligence, but this conjecture has yet to be tested. They asserted that these individuals have experience with a wider range of emotions, and therefore may be more emotionally fluent. Furthermore, dramatic changes in mood should also be associated with a wide range of expectations regarding future events, thereby enhancing their ability to generate a greater variety of possibilities about future plans and outcomes. Positive mood can have an impact on cognitive organization and an individual's ability to utilize information in memory, thereby permitting creative thinking and enhancing problem solving abilities (Salovey & Mayer, 1990). Individuals can use their awareness of their emotions to make optimal decisions about what current situations or

events are most in need of their immediate attention. Finally, moods and emotions can be channeled into persistence in challenging situations.

In general, individuals with higher emotional intelligence are more likely to integrate emotional considerations into decision making, to be respectful of their own internal experience and that of others, and to be more creative and flexible in formulating possible solutions to vexing problems (Salovey & Mayer, 1990). Emotional intelligence has been found to have strong positive correlations with optimism (Schutte et al., 1998), and Salovey and Mayer (1990) have asserted that emotional intelligence can be thought of as synonymous with at least a limited level of positive mental health. They later expanded their concept of emotional intelligence by adding an emphasis on potential for intellectual and emotional growth, and identifying stages of abilities that are mastered sequentially (Mayer & Salovey, 1997).

The relationship between emotional intelligence and other more traditional measures of intelligence is unclear. Salovey and Mayer (1990) originally made no claims on the matter, but later suggested that defining emotional intelligence as involving a series of mental abilities qualifies it as a form of intelligence (Mayer & Salovey, 1993), and more recently predicted that emotional intelligence should be related to but distinct from other types of intelligence (Mayer & Salovey, 1997). Schutte et al. (1990) found emotional intelligence to longitudinally predict grade point average, but to have no relationship with SAT scores. Mayer and Geher (1996), however, did find a relationship between success on an emotional intelligence task and self-reported SAT scores.

Little research has been done directly in the area of emotional intelligence, because of its relative youth as a psychological construct. One component that has received some

attention is an individual's ability to perceive emotions in the same way that people in general do. Mayer, DiPaolo, and Salovey (1990) found that the ability to extract consensually agreed upon emotional information from faces, colors and abstract designs was related to empathy, which has been described as central to emotional intelligence (Mayer & Salovey, 1993). Mayer and Geher (1996) investigated individuals' abilities to infer a target's emotions from his or her stated thoughts. They used two criterion variables for evaluating participants' accuracy, the target's report of his or her emotions, and the group consensus of the target's emotions; however, they found no relationship between the two criterion variables. Nevertheless, they found that agreement with either of the criteria correlated positively with self-reported empathy and negatively with a measure of defensiveness. Although empirically tapping into the components of emotional intelligence has proven a challenging task, it does appear that the construct consists largely of abilities that can be measured using specific tasks (Mayer et al., 1990).

#### Issues of Overlap

As made evident by this review, the dimensions under consideration in this study exhibit a high degree of overlap with one another. Cozzarelli (1993) found that scores on measures of self-esteem, optimism, and perceived control were highly correlated, and that while any one of the three alone accounted for approximately 20% of the variance in self-efficacy beliefs, the combination of all three accounted for only 27%. This led her to conclude that the three attributes reflected the same underlying "personal resource" (p. 1233). Similarly, Wanberg (1997) found high correlations between these three constructs, and combined them to form a composite measure of "resilient personality" (p. 738) to avoid statistical multicollinearity. However, Cozzarelli observed enough exceptions in her

findings to conclude that in particular situations, these attributes may individually retain small but unique relationships with specific outcomes.

Judge, Erez and Bono (1998) found evidence for a unified factor, termed “positive self-concept,” that was composed of self-efficacy, self-esteem, locus of control, and emotional stability (or non-Neuroticism). Individuals who possess a positive self-concept are more likely to evaluate themselves positively and be accepting of their identity. Positive self-concept is positively related to managers’ career success and ability to cope with organizational change (Judge et al., 1999). Similarly, Judge et al. (1997) introduced the concept of “core self-evaluations,” which consists primarily of self-esteem and generalized self-efficacy, and secondarily of locus of control and non-Neuroticism. Core self-evaluations are described as fundamental beliefs that individuals hold about themselves and their functioning in the world, and that have a “top-down” influence on self-appraisals in specific situations. In other words, core self-evaluations influence all specific evaluations of oneself, rather than being the cumulative result of them. Judge, Bono, and Locke (2000) found core self-evaluations to be relatively stable over a period of up to 30 years, beginning in early adolescence. Core self-evaluations have been reported to have consistent effects on job satisfaction apart from the characteristics of the job itself (Judge, Locke, et al., 1998), even when the measures of core evaluations were taken 30 years previous to the assessment of job satisfaction (Judge et al., 2000).

### The Current Study

All of the constructs under investigation in the current study share an important common implication: they are related to healthy human functioning. Extensive theoretical formulations and empirical evidence illustrate the strong connections among these traits and

characteristics, and support the conceptualization of a broad dimension of adaptability as their common foundation. As has been demonstrated, the traits examined in the current study are strongly related; in other words, individuals who exhibit one of these characteristics tend to exhibit the others as well. These individuals have also been shown to adapt more effectively to both the changing and the enduring circumstances of life. The primary purpose of the current research is to closely examine the complex relationships between the variables in question, gaining further insight into their overlap in the area of human functioning and adaptability.

An important part of this objective is the investigation of differing perspectives regarding the manner in which each of the constructs relates to the others and contributes to human functioning. It is quite evident from the literature that the nature of the overlap between many of these constructs is unclear, and in some cases, a topic of ongoing controversy. For example, the question of whether optimism is a distinct and independent construct remains answered (see Judge, Erez, & Bono, 1998), as do questions regarding the usefulness of the conceptualization of self-efficacy as a generalized attribute (see Gist & Mitchell, 1992). These questions are addressed in the current research, including the examination of self-efficacy on both general and domain-specific levels.

A secondary purpose of the current study is the exploratory examination of the developing concept of emotional intelligence. With the exception of the construct of optimism, no known research has examined the relation between emotional intelligence and the variables in question. Since emotional intelligence is considered to be related to effective human functioning (Salovey & Mayer, 1990), its relation with other variables associated with human functioning is an important empirical question.

A final purpose of the current study is to investigate the relative predictive ability of the variables in question with regard to a behavioral measure of success that is particularly germane to college students, academic success (as measured by GPA and ACT scores). Although this is hardly a measure of human adaptability in general, it can provide insight into the relative potency of these characteristics in contributing to success in college.

Several studies have examined the combination of factors into larger constructs related to human adaptability (e.g., Judge, Erez, & Bono, 1998; Judge et al., 1997); others have investigated the problematic overlap between some of the variables under consideration (e.g., Smith et al., 1989). However, no study to date has attempted to investigate the overlap and distinctiveness among all of the variables to be examined in the current study. Because it is evident that they are all important contributors to the understanding of healthy human functioning, this is a much needed endeavor. Investigation of all of these constructs in a single study can also allow for simultaneous exploration of a variety of issues of problematic conceptual and empirical overlap. Furthermore, the current study allows for the concurrent examination of all of these variables with regard to (1) emotional intelligence, a rather broad measure of human functioning that has received relatively little empirical attention, and (2) a simple measure of academic success.

### Hypotheses

In general, it is predicted that the variables under consideration in the present study will all overlap to some degree, demonstrating their common contribution to human adaptability. It is expected that the degree of overlap between the constructs will be substantial, but that they will retain enough unique variation to support their conceptualization as independent constructs. The complexity of the constructs, including



specific theoretical considerations and empirical evidence, necessitate the formulation of a variety of detailed hypotheses regarding relations between specific variables; these are outlined below. For the purpose of disconfirmation, several other variables that are expected to be unrelated or only weakly associated with the underlying dimension of adaptability are examined as well. These include social desirability, and the Big Five factors Openness, Agreeableness, and Conscientiousness.

For the purpose of examining the extent to which all variables in the current study overlap, a factor analysis will be performed. It is predicted that the variables conceptualized as central to the construct “adaptability” will load on a single factor; these variables include generalized self-efficacy, self-esteem, locus of control, optimism, positive and negative affect, Extraversion, Neuroticism, and emotional intelligence. It is predicted that confidence for the six Holland themes will load on one or more separate factors, as they are not conceptualized as central to adaptability. Finally, it is predicted that Openness, Agreeableness, and Conscientiousness will load on one or more separate factors as well.

### Hypothesis 1

It is predicted that generalized self-efficacy will be related to self-efficacy for the six Holland (1997) themes (see Figure 1). Although task-specific self-efficacy in different domains has been shown to be relatively unrelated (Lent et al., 1986), it is expected that generalized self-efficacy will tap into basic resources that allow individuals to have higher efficacy expectations across domains. This is suggested by Judge et al.’s (1997) formulation of the concept of generalized self-efficacy and by Betz and Klein’s (1996) findings. In addition, it is predicted that generalized self-efficacy will be more strongly related to the

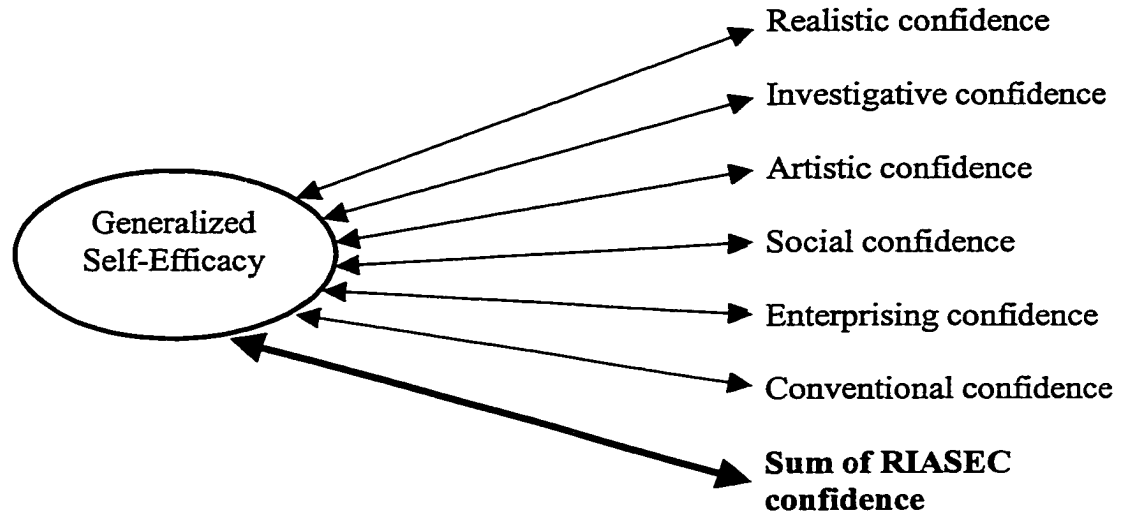


Figure 1. Hypothesis 1

average of scores for the six Holland themes than to any individual Holland theme. This is based on Judge, Locke et al.'s (1998) suggestion that an average of diverse task-specific self-efficacy scores should be related to generalized self-efficacy. Although self-efficacy for a Holland theme indicates self-efficacy for more than one specific task, it covers a narrow domain of highly related tasks.

### Hypothesis 2

It is predicted that self-efficacy, locus of control, self-esteem, optimism, and Neuroticism will all be at least moderately related to one another (see Figure 2). All relations are predicted to be positive with the exception of Neuroticism, which is expected to relate negatively to the other four constructs. This hypothesis is based on several conceptual formulations that have combined these characteristics in a theoretically and empirically meaningful manner. First of all, the "core self-evaluations" and "positive self-concept" that have been developed and tested empirically by Judge and his colleagues (Judge et al., 2000;

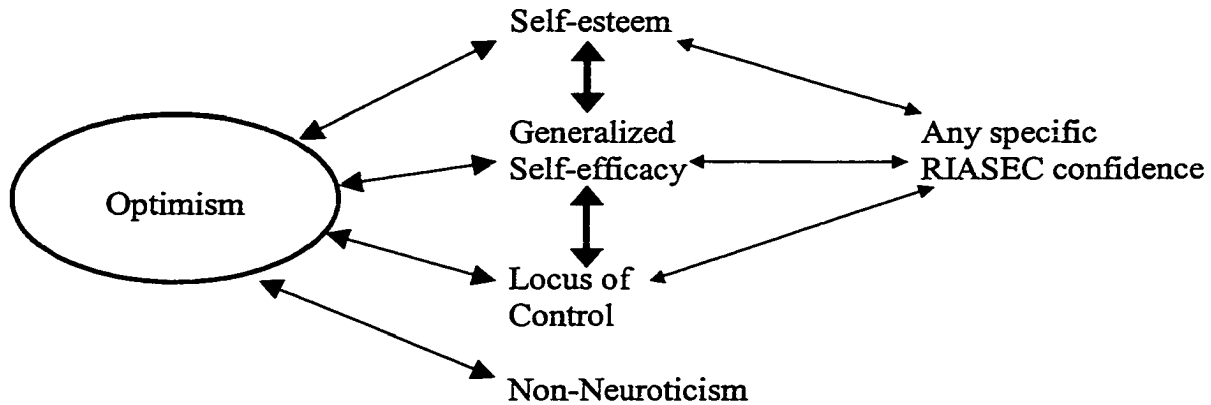


Figure 2. Hypothesis 2

Judge, Erez, & Bono, 1998; Judge et al., 1997; Judge, Locke et al., 1998; Judge et al., 1999) include self-esteem, generalized self-efficacy, locus of control, and non-neuroticism (or emotional stability). These traits have been found to form a reliably unified factor, and to predict a variety of indicators of adaptability. Secondly, Wanberg (1997) found a factor including self-esteem, locus of control, and optimism to predict better coping in a stressful situation. Major et al. (1998), who named this factor “resilient personality resources,” reported that it was predictive of higher self-efficacy and lower distress with regard to a stressful situation.

Hypothesis 2a. Generalized self-efficacy is conceptually related to locus of control, because of their similar focus on a belief in the ability to influence important life events (Judge, Erez, & Bono, 1998; Judge, Locke, et al., 1998; Lennings, 1994; Phillips & Gully, 1997). In addition, as Gist (1987) has suggested, individuals with an internal locus of control respond more positively to Bandura’s (1977, 1982) sources of efficacy information and require fewer success experiences to raise their self-efficacy, and therefore are more likely to have higher self-efficacy across domains; this conjecture has been supported by research

(Martocchio & Dulebohn, 1994; Matsui et al., 1990). It is predicted that the relation between generalized self-efficacy and locus of control will be especially strong because of these reasons and because they are the only two variables under consideration that are directly related to personal agency, an important point according to social cognitive theory (Bandura, 1989).

Hypothesis 2b. It is predicted that self-efficacy for any one of the six Holland themes will not be related to locus of control as strongly as generalized self-efficacy will. Unlike generalized self-efficacy, task-specific self-efficacy is quite conceptually distinct from locus of control (Judge, Locke, et al., 1998). Holland theme self-efficacy is not task-specific per se, but it does cover a narrower domain of behavior than generalized self-efficacy, and therefore should not be as closely related to locus of control.

Hypothesis 2c. Self-efficacy theory would predict that self-efficacy should be related to optimism because individuals with high self-efficacy visualize and focus on success scenarios, whereas those with low self-efficacy focus on what is likely to go wrong (Bandura, 1993). No predictions are being made regarding differential strength of the relations between the two forms of self-efficacy and optimism. As described previously, optimism has also been shown to relate strongly to locus of control, self-esteem, and Neuroticism, as well as other variables (Cozzarelli, 1993; Judge et al., 1997). It is predicted that these findings will be replicated, but that there will be sufficient evidence to support the identification of optimism as an independent and meaningful construct as maintained by Scheier and Carver (1985; Carver & Scheier, 1994) and others.

Hypothesis 2d. Self-efficacy is also conceptually related to self-esteem in important ways; specifically, beliefs about abilities in personally meaningful domains affect feelings of

self-worth, which are fundamental to self-esteem (Judge, Erez, & Bono, 1998; Maddux, 1995). Because generalized self-efficacy encompasses more life domains and therefore is more likely to consistently tap into areas that are central to an individual's self-concept than Holland theme self-efficacy, it is expected that generalized self-efficacy will show a stronger relation with self-esteem than will self-efficacy for any one of the Holland themes.

Hypothesis 2e. There is no theoretical or conceptual basis to predict that locus of control, self-esteem, and Neuroticism will exhibit relations with one another above and beyond what can be explained by the relations described above. The relations that are expected between these three variables should be fully accounted for by their overlap with self-efficacy and optimism.

### Hypothesis 3

It is predicted that both self-efficacy and positive affect will be related to Extraversion, but that negative affect will not (see Figure 3).

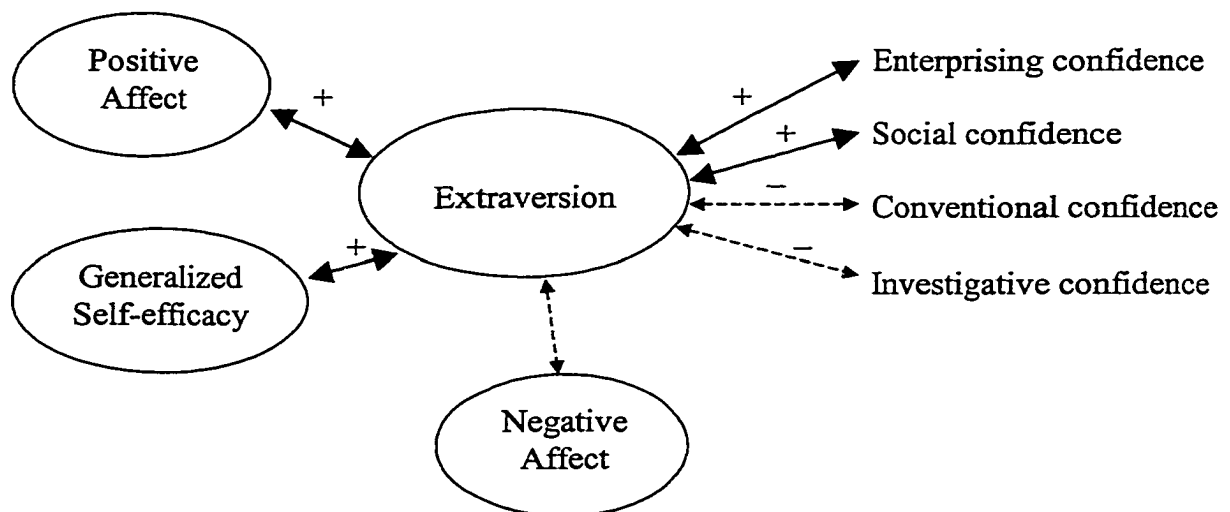


Figure 3. Hypothesis 3

Hypothesis 3a. The relation between Extraversion and positive affect is well-established empirically (Allik & Realo, 1997; Berry & Hansen, 1996; McFatter, 1994; Meyer & Shack, 1989) and fundamental to theoretical formulations of the structure of affect (Costa & McCrae, 1992; Watson et al., 1988). One of the lines of evidence for the conceptualization of positive and negative affect as independent dimensions is that positive affect is related to Extraversion but negative affect is not (Allik & Realo, 1997; Diener & Emmons, 1985; Watson et al., 1999); it is expected that this finding will be replicated.

Hypothesis 3b. It is predicted that Extraversion and generalized self-efficacy will be related based on their common conceptual characteristics of assertiveness and agency (John & Srivastava, 1999; Judge et al., 1997), a connection that is supported empirically (Bernard et al., 1996). However, it is predicted that Extraversion will relate positively with self-efficacy for the Social and Enterprising Holland themes and negatively or not at all with self-efficacy for the Investigative and Conventional themes, in replication of past research (Tuel & Betz, 1998). Although Extraversion is expected to relate to general confidence across domains, there are specific domains (such as those encompassed by the Investigative and Conventional themes) that are not necessarily associated with Extraversion.

#### Hypothesis 4

It is predicted that negative affect will have a strong positive relationship with Neuroticism but will be only slightly negatively related to positive affect. It is predicted that self-esteem will be positively related to positive affect and negatively related to negative affect (see Figure 4).

Hypothesis 4a. Like the relation between Extraversion and positive affect, the association between Neuroticism and negative affect is fundamental to theory regarding the

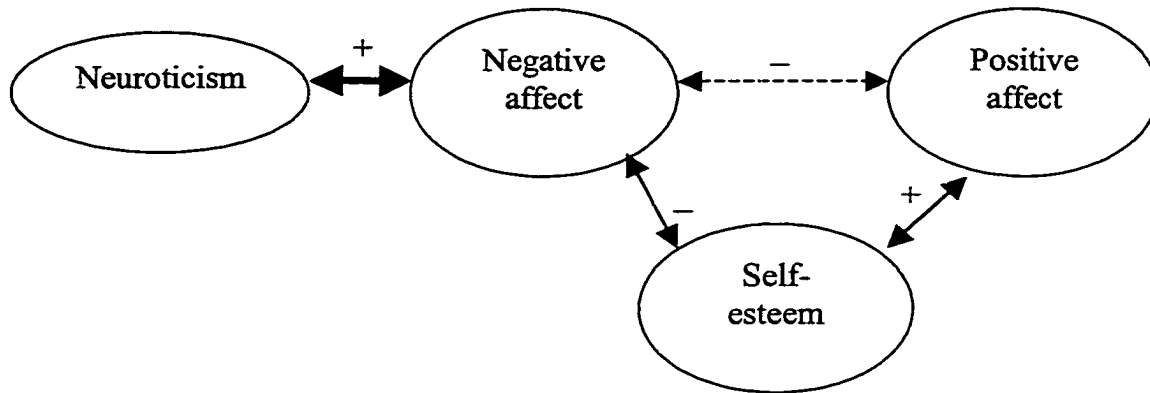


Figure 4. Hypothesis 4

structure of affect (Costa & McCrae, 1992; Watson et al., 1988) and has been strongly supported by research (Allik & Realo, 1997; Berry & Hansen, 1996; Rusting & Larsen, 1997).

Hypothesis 4b. Because I am using Watson and Tellegen's (1985) concepts of positive and negative affect in which both are also activated affect and therefore not bipolar opposites, positive and negative affect should be relatively unrelated. This conjecture has been supported by substantial research as well (Allik & Realo, 1997; Berry & Hansen, 1996; Diener & Emmons, 1985; Diener et al., 1995; Watson & Clark, 1997; Watson et al., 1988; Watson et al., 1999).

Hypothesis 4c. The connection between positive and negative affect and self-esteem appears complex. Self-esteem has been regarded as highly related to positive affect conceptually (Judge et al., 1997; Judge, Locke et al., 1998), although some research has not supported this statement (e.g., Kernis, 1993). Brown and Dutton (1995) found both positive and negative affect to be strongly related to self-esteem (with opposite valences), and Campbell and Lavalley (1993) reported a connection between low self-esteem and frequency

of mood swings. In spite of these ambiguous findings, conceptual characterizations of self-esteem (e.g., Judge et al., 1996) lead to the prediction that self-esteem will exhibit a positive relation to positive affect and a negative relation to negative affect.

#### Hypothesis 5

It is predicted that emotional intelligence will be positively related to both positive affect and negative affect, and to optimism (see Figure 5). Mayer and Salovey (1993) proposed that individuals who experience substantial mood swings, or both positive and negative affect, would have higher emotional intelligence; the current research will be the first known test of this conjecture. Salovey and Mayer (1990) suggested that emotional intelligence could be thought of as a type of positive mental health. None of the variables under consideration are direct measures of mental health, although all are considered to be related to mental health. The only construct that has been reported to relate empirically to emotional intelligence is optimism (Schutte et al., 1998); this is the basis for the proposed relation between emotional intelligence and optimism. However, exploratory investigation into emotional intelligence's connections with the other constructs will be of interest in the current study.

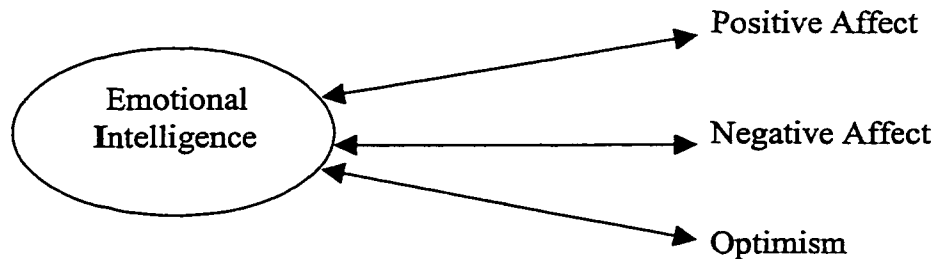


Figure 5. Hypothesis 5



### Hypothesis 6

It is predicted that both forms of self-efficacy will be positively related to ACT scores and GPA (see Figure 6). Mastery experiences is the most potent source of efficacy information (Bandura, 1999); higher ACT scores and GPA are indicative of greater academic success. Self-efficacy, in turn, predicts academic performance (Lent et al., 1984, 1986, 1987; Multon et al., 1991). In other words, there is reciprocal relationship between self-efficacy and academic success that is strongly grounded in self-efficacy theory and well supported by research; it is expected that this connection will be supported by all measures of self-efficacy in the current study.

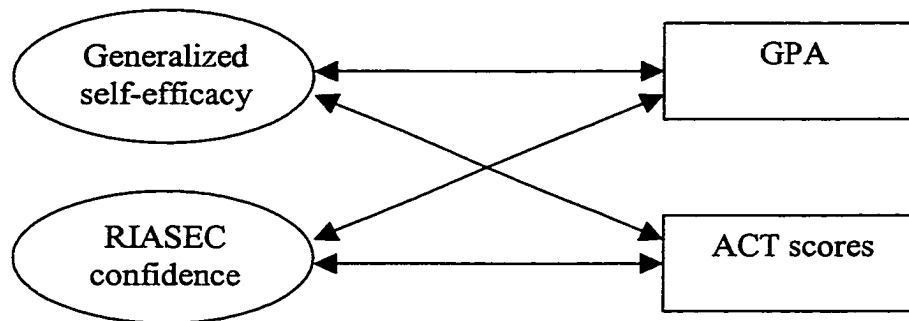


Figure 6. Hypothesis 6

## METHOD

### Participants and Procedure

Participants were 316 students (211 female, 105 male) in psychology classes at Iowa State University who received extra credit points for their voluntary participation. Ten of the participants were African American, one was American Indian, 16 were Asian or Pacific Islander, 275 were Caucasian, eight were Latino/a, four indicated “other,” and two did not provide a response. A majority of the participants were single (93.4%) first-year students (58.9%). Over 75% of participants had selected a major in one of four university colleges, Liberal Arts and Sciences (36.4%), Education (17.7%), Engineering (10.8%), or Business (10.1%), although all university colleges were represented in the sample. Participants were administered a battery of self-report inventories (described below) in groups of 5-20. Current cumulative GPA and ACT scores were obtained from the university. Among the sample, only 191 women and 92 men had ACT scores on record; those who did not have ACT scores were students who transferred from another university.

### Measures

#### The Self-Efficacy Scale (SES)

The SES (Sherer et al., 1982) was designed to assess perceived self-efficacy, and consists of 30 items to which the participant responds on a 5-point Likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). The traditional format for measurement of self-efficacy is to assess self-efficacy magnitude through yes-no questions regarding specific tasks, and then to assess strength by asking for a percentage of confidence in that answer (Lee & Bobko, 1994). However, it has been demonstrated that a Likert-type format is an

equally reliable and valid method by which to measure self-efficacy (Maurer & Pierce, 1998).

The SES was developed through factor analysis and contains two subscales, General Self-Efficacy (17 items) and Social Self-Efficacy (six items). Only the General Self-Efficacy subscale was used in the current study because social self-efficacy is not directly of interest here and because validity and usefulness of the Social Self-Efficacy subscale has been questioned (Sherer & Adams, 1983). The SES has been found to have moderate positive correlations with self-esteem, locus of control, personal adjustment, and social adjustment, as well as self-reported success in vocational, educational, and military domains (Sherer & Adams, 1983; Sherer et al., 1982). Internal reliability of the General Self-Efficacy subscale has been reported as a Cronbach's alpha of .86 (Sherer et al., 1982). In the current study, reliability was .87.

#### Strong Interest Inventory (SII)

The SII is one of the most widely used instruments in both career counseling research and practice (Harmon, Hansen, Borgen, & Hammer, 1994). It is used to assess interests in occupations, ranging in scope from very broad areas such as preferred environments and type of interpersonal interaction to specific jobs and job requirements. The scales of the 1994 revision of the SII were normed on the General Reference Sample, 18,951 employed women and men who were selected on the basis of a set of criteria including job satisfaction, job experience, typicality of job description, and age.

The SII consists of six General Occupational Themes, 25 Basic Interest Scales, 211 Occupational Scales, and four Personal Style Scales. The General Occupational Themes measure the six Holland (1997) vocational interest themes, Realistic, Investigative, Artistic,

Social, Enterprising, and Conventional. These are reported as standardized scores, with means of 50 and standard deviations of 10 (Harmon et al., 1994). External validity of the General Occupational Themes has been demonstrated through their ability to predict occupational choice (Donnay & Borgen, 1996). Internal consistency reliabilities have been reported to range from .90 for Social to .94 for Artistic; test-retest reliabilities over 3- to 6-month intervals range from .84 for Enterprising to .92 for Realistic (Harmon et al., 1994). In the current study, internal consistencies as measured by Cronbach's alpha were as follows: .93 for Realistic, .88 for Investigative, .94 for Artistic, .91 for Social, .89 for Enterprising, and .89 for Conventional.

#### The Skills Confidence Inventory (SCI)

The SCI (Betz, Borgen, & Harmon, 1996) was designed to assess self-efficacy for each of the six Holland (1997) themes. It was developed from an initial pool of 151 items, which were then trimmed to form six 10-item scales, based on data from over 1,800 college students and employed adults (Betz, Harmon, & Borgen, 1996). Internal consistency reliabilities have been reported to range from .84 for the Enterprising theme to .88 for the Realistic theme. Parsons and Betz (1998) reported three-week test-retest reliabilities ranging from .83 for the Realistic theme to .87 for the Social theme. The SCI has been shown to accurately predict occupational group membership based on the Holland interest themes corresponding with each occupation (Donnay & Borgen, 1999; Harmon et al., 1996). In the current study, internal consistencies as measured by Cronbach's alpha were as follows: .85 for Realistic, .87 for Investigative, .87 for Artistic, .87 for Social, .85 for Enterprising, and .87 for Conventional.

### The NEO Five Factor Inventory (NEO-FFI)

The NEO-FFI (Costa & McCrae, 1992) is an abbreviated form of the NEO Personality Inventory (NEO PI; Costa & McCrae, 1985), and is designed to measure the Big Five personality dimensions. The NEO-FFI was constructed based on factor analysis of the NEO PI items; for each of the five scales, twelve items were selected that loaded highly on the corresponding factor, resulting in a 60-item inventory. The Extraversion and Neuroticism scales on the NEO-FFI are the only ones of interest in the current study; they have been reported to correlate with the corresponding scales on the NEO PI-R at .90 and .92, respectively. The mean internal consistency reliability (Cronbach's alpha) across the five NEO-FFI scales was reported to be .78; coefficients for the Extraversion and Neuroticism scales were .77 and .86, respectively (Costa & McCrae, 1992). Similar internal consistency has been reported elsewhere; John and Srivastava (1999) reported a mean Cronbach's alpha of .79, with coefficients of .78 and .85 for the Extraversion and Neuroticism scales, respectively. Test-retest reliability over a three-month period has been reported at .79 for both Extraversion and Neuroticism (Costa & McCrae, 1992). Corrected pairwise convergent validities with two other measures of the Big Five have been reported as correlations of .79 and .83 for Extraversion, and .82 and .90 for Neuroticism (John & Srivastava, 1999).

### The Positive and Negative Affect Schedule (PANAS)

The PANAS (Watson et al., 1988) consists of two 10-item scales. The Positive Affect (PA) scale is comprised of the items active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, and strong. The Negative Affect (NA) scale is comprised of the items afraid, ashamed, distressed, guilty, hostile, irritable, jittery, nervous, scared, and upset. The scales can be used to assess positive and negative affect for a variety of time

frames, ranging from “the present moment” to “the past year,” as well as “in general.”

Watson et al. (1988) reported that internal consistency reliability ranged from .84 to .87 for NA and .86 to .90 for PA over a variety of temporal instructions. Test-retest reliability was reported to increase as the reported time frame lengthens, from .47 and .39 for PA and NA, respectively, for “today,” to .63 and .60 for PA and NA, respectively, for “the past year.” “In general” ratings obtained the highest test-retest reliability, .68 and .71 for PA and NA, respectively, establishing the reliability of the PANAS as a measure of trait affect.

Convergent validity was established by factor analyzing 60 mood descriptors and comparing the PA and NA scales to the first two rotated factors; convergent correlations ranged from .89 to .95, whereas discriminant correlations ranged from -.02 to -.18. In the current study, participants were instructed to indicate the extent to which they experienced each emotion “during the past few weeks.” Internal consistency reliability was .89 for PA and .88 for NA.

#### Internality, Powerful Others, and Chance Scales

These three eight-item scales measure locus of control in terms of expectations that control over important events is held by oneself (I), powerful others (P), or chance (C) (Levenson, 1974). Respondents rate the items on a 6-point Likert scale ranging from -3 (strongly disagree) to +3 (strongly agree). Internal consistency has been reported as Kuder-Richardson reliabilities of .64 for I, .77 for P, and .78 for C. Split-half (Spearman-Brown) reliabilities were .62, .66, and .64, respectively. Test-retest reliabilities were .64, .74, and .78, respectively (Levenson, 1974). P and C have been found to correlate moderately with one another (.41 to .60) and to have an unclear relation to I (-.25 to .19) (Levenson, 1981). As an indication of criterion validity, Rotter’s (1966) Internality-Externality scale has been reported to correlate positively with P (.25) and C (.56), and negatively with I (-.41). Finally,

it has been demonstrated that the three scales are negligibly related to the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964); correlations were .09 for I, .04 for P, and .08 for C (Levenson, 1981). In the current study, internal consistency reliability was .73 for I, .73 for P, and .78 for C.

#### Rosenberg's Self-Esteem Scale

This homogeneous scale was designed to measure self-esteem, and consists of ten items, five of which are reverse scored (Rosenberg, 1965). Respondents rate the items on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). It is the most commonly used measure of self-esteem, and its validity is supported by considerable empirical evidence (Blascovich & Tomaka, 1991). Internal consistency reliability has been reported to range from .77 to .88 (Cronbach's alpha). Rosenberg (1965) reported test-retest reliability of .85; later studies have reported correlations between .82 and .85 for a 1-2 week interval (Blascovich & Tomaka, 1991). Moderate to high correlations with other measures of self-esteem have been reported as well. In the current study, internal consistency reliability was .89.

#### The Life Orientation Test-Revised (LOT-R)

The original LOT (Scheier & Carver, 1985) was a 12-item (including four filler items) self-report measure assessing optimism in the form of generalized expectancies for positive versus negative outcomes. Internal reliability has been measured as a Cronbach's alpha of .82 (Scheier et al., 1994). Scheier et al. (1994) revised the LOT to create a more homogeneous scale and eliminate potential overlap with measures of positive reinterpretation and growth. They removed two items from the scale that addressed ways of reacting to problems and stress rather than explicitly assessing the expectation of positive outcomes.

The resulting LOT-R consisted of three positively keyed items, three negatively keyed items, and four filler items. Internal reliability of the LOT-R was reported by Scheier et al. (1994) as a Cronbach's alpha of .78; test-retest reliability ranged from .56 to .79. The LOT-R was found to correlate highly (.95) with the original LOT, and moderately with measures of self-mastery (.48), trait anxiety (-.53), self-esteem (.50), and Neuroticism (-.36). The original LOT (Scheier & Carver, 1985) correlated .26 with social desirability. In the current study, internal consistency reliability was .80.

#### The Emotional Intelligence Scale

This 33-item scale was designed to assess emotional intelligence as conceptualized by Salovey and Mayer (1990) (Schutte et al., 1998). It is a homogeneous scale that was constructed through factor analysis. Schutte et al. (1998) reported internal consistency reliability coefficients of .90 with the initial test development sample of 346 college students and working adults, and .87 with a replication sample of 32 college students. Two-week test-retest reliability was .78. The scale was reported to correlate moderately with measures that assess various aspects of awareness and expression of emotion, outlook on life, depressed mood, and ability to regulate emotions and impulsivity. In the current study, internal consistency reliability was .90.

#### Marlowe-Crowne Social Desirability Scale

This scale was designed to identify individuals who tend to describe themselves in an overly positive light, especially in terms of what is considered socially acceptable (Crowne & Marlowe, 1964). Internal consistency reliability was reported as a KR-20 coefficient of .88. Test-retest reliability over a one-month period was .88. This scale is included in the current study because many of the constructs under consideration include characteristics that carry



socially-prescribed value; inclusion of this scale can allow for evaluation of the degree to which findings are due to a socially desirable response set. In the current study, internal consistency reliability was .92.

## RESULTS

### Preliminary Analyses

Means and standard deviations for all variables under consideration are reported separately by gender in Table 1; means and standard deviations for the three Big Five variables used for disconfirmation are displayed as well. *Ns* vary slightly because of incomplete data due to participant failure to complete all items. Scale scores for which over 10% of items were not completed were excluded from the data set. Scale scores for which at least 90% of items were completed were prorated for missing data.

Mean gender differences are also reported in Table 1. The experiment-wise alpha level was set at .05; because 24 comparisons were made,  $p < .002$  is reported as a significant difference. Gender differences were found on Extraversion, Agreeableness, and Conscientiousness, with women scoring higher on all three. Gender differences were also found for Realistic, Social, Enterprising, and Conventional confidence, with women scoring higher on Social and men scoring higher on the other three. There were significant gender differences on GPA and ACT score; in accord with many previous studies of college students, women were higher on GPA but men were higher on ACT score. Although information about any gender differences in the relationships examined in the current study would be highly valuable, such an investigation is outside the scope of the current research. All subsequent results will be reported with women and men combined.

### Factor Analysis

A factor analysis was performed using the principal axis method with varimax rotation to test the general hypothesis that there would be evidence for an underlying common dimension of adaptability. The number of factors extracted was determined by

Table 1. Means and Equality of Means for Men and Women

Variables	Women			Men			<i>t</i>
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	
Neuroticism <sup>a</sup>	21.57	7.92	209	20.34	8.24	104	1.28
Extraversion <sup>a</sup>	33.07	5.42	209	30.57	6.23	104	3.65*
Openness <sup>a</sup>	27.50	5.27	209	27.03	5.48	104	.74
Agreeableness <sup>a</sup>	33.00	5.94	209	29.37	6.14	104	5.04*
Conscientiousness <sup>a</sup>	33.00	5.91	209	30.61	6.79	104	3.21*
Emotional Intell. <sup>a</sup>	127.82	11.99	203	124.08	14.71	99	2.36
Internality Scale <sup>a</sup>	29.63	4.37	204	29.60	4.33	101	.04
Powerful Others <sup>a</sup>	20.48	4.23	206	21.40	4.79	103	-1.73
Chance Scale <sup>a</sup>	20.46	4.73	206	21.04	4.79	103	-.97
Optimism <sup>b</sup>	22.07	3.66	210	21.31	4.55	105	1.49
Positive Affect <sup>a</sup>	36.46	7.01	211	36.40	7.05	105	.08
Negative Affect <sup>a</sup>	22.49	7.55	211	22.65	7.30	105	-.18
Self-Esteem Scale <sup>a</sup>	31.90	5.14	210	33.43	4.84	104	-2.54
Self-Efficacy Scale <sup>b</sup>	62.64	7.86	209	62.00	9.43	105	.60
Realistic Conf. <sup>b</sup>	3.18	.74	209	3.56	.85	104	-3.94*
Investigative Conf. <sup>b</sup>	3.06	.87	209	3.35	.75	104	-3.08
Artistic Confidence <sup>a</sup>	3.22	.83	209	3.08	.79	104	1.43
Social Confidence <sup>a</sup>	3.89	.68	209	3.61	.75	104	3.29*
Enterprising Conf. <sup>a</sup>	3.26	.72	209	3.54	.74	104	-3.23*
Conventional Conf. <sup>a</sup>	3.04	.75	209	3.56	.76	104	-5.80*
SCI Average Score <sup>a</sup>	3.28	.53	209	3.45	.51	104	-2.83
Social Desirability <sup>a</sup>	15.90	5.66	207	17.04	14.31	102	-1.00
ACT Score <sup>a</sup>	23.34	3.40	191	24.92	3.75	92	-3.56*
GPA <sup>a</sup>	3.02	.57	210	2.77	.62	105	3.49*

<sup>a</sup>Values are based on *t*-tests for independent samples with equal variances.

<sup>b</sup>Values are based on *t*-tests for independent samples with unequal variances.

\**p* < .002 (Experiment-wise *p* < .05).

scree plots and eigenvalues. A five factor solution emerged; the results of this analysis are shown in Table 2. Variables loading most strongly on the first factor included Neuroticism, optimism, Chance, self-esteem, Powerful Others, and negative affect. Generalized self-efficacy had a factor loading of .47 on the first factor, but was more strongly associated with

Table 2. Principal Axis Factor Analysis with Varimax Rotation for Variables of Interest

Variable	Factor				
	1 <sup>a</sup>	2 <sup>b</sup>	3	4	5
Neuroticism	<b>-.75</b>	-.31		.16	
Optimism	<b>.65</b>	.40			
Chance	<b>-.64</b>	-.15		-.14	-.12
Self-Esteem	<b>.63</b>	.36	.16	-.14	
Powerful Others	<b>-.62</b>		.10	-.23	-.14
Negative Affect	<b>-.61</b>				-.19
Emotional Intelligence	.26	<b>.65</b>	.10	.37	.13
Positive Affect	.27	<b>.62</b>	.16		
Extraversion	.17	<b>.60</b>	-.19	.12	
Enterprising Conf.	.11	<b>.55</b>	.42	.18	-.35
Self-Efficacy Scale	.47	<b>.50</b>	.29		.37
Internality	.13	<b>.39</b>	.11		.14
Conventional Conf.		.18	<b>.77</b>		
Realistic Conf.			<b>.72</b>	.23	
Investigative Conf.			<b>.68</b>	.21	.13
Openness			.13	<b>.68</b>	
Artistic Confidence		.19	.26	<b>.68</b>	
Social Confidence		.43		<b>.50</b>	
Agreeableness	.29		-.14		<b>.48</b>
Conscientiousness	.17	.38	.21	-.13	<b>.47</b>
Eigenvalue	3.09	2.96	2.12	1.62	.86
Variance accounted for	15%	13%	11%	8%	4%

*Note.* Only loadings greater than .10 are displayed.

<sup>a</sup>Subjective Well-Being. <sup>b</sup>Agentic Adaptability.

the second factor. Variables loading most strongly on the second factor included emotional intelligence, positive affect, Extraversion, Enterprising confidence, generalized self-efficacy, and Internality. Social confidence had a factor loading of .43 on the second factor, but was more strongly associated with the fourth factor. These first two factors accounted for 29% of the variance. The first factor was named Subjective Well-Being, because it included the

presence of adaptive beliefs about oneself and about the world, and the absence of maladaptive characteristics and beliefs. The second factor was labeled Agentic Adaptability, because it included variables that are more active, with a focus on personal agency and the ability to affect one's environment. Variables loading on the third factor included Conventional, Realistic, and Investigative confidence. Enterprising confidence had a factor loading of .42 on the third factor, but was more strongly associated with the second factor. Variables loading on the fourth factor included Openness and Artistic and Social confidence. Variables loading on the fifth factor included Agreeableness and Conscientiousness.

### Hypothesis 1

#### Correlational Analyses

Correlations between generalized self-efficacy and the six Holland theme self-efficacies (including the average of the six) are reported in Table 3. The Williams

Table 3. Correlations Between Self-Efficacy Variables, Self-Esteem, and Locus of Control

Variable	Self-Efficacy	Self-Esteem	Internality	Chance	Powerful Others
Self-Efficacy	--	<b>.51</b>	<b>.41</b>	<b>-.45</b>	<b>-.39</b>
Realistic	.19	.11	.08	-.07	.00
Investigative	<b>.33</b>	.17	.15	-.13	-.07
Artistic	.17	.03	.07	-.09	-.07
Social	.20	.12	.11	-.13	-.17
Enterprising	<b>.33</b>	<b>.30</b>	.19	-.18	-.05
Conventional	.29	.20	.17	-.12	.01
Avg. of SCI	<b>.38</b>	.22	.19	-.18	-.08

*Note.* For correlations with Self-Efficacy and Self-Esteem,  $n = 313$ . For correlations with Internality, Chance, and Powerful Others,  $n = 305$ . Correlations of at least .30 are bold for emphasis.

modification of the Hotelling test (Kenny, 1987) was used to test the prediction that generalized self-efficacy would be more strongly related to the average of scores for the six Holland themes than to any individual Holland theme. Specifically, this procedure tests for differences between two correlations. It was found that the correlation between generalized self-efficacy and the average of Holland theme self-efficacy ( $r = .38$ ) was significantly larger than the correlations between generalized self-efficacy and the Realistic theme ( $r = .19$ ;  $t[310] = -4.81, p < .001$ ), the Artistic theme ( $r = .17$ ;  $t[310] = -5.07, p < .001$ ), the Social theme ( $r = .20$ ;  $t[310] = -3.28, p < .001$ ), and the Conventional theme ( $r = .29$ ;  $t[310] = -2.06, p < .05$ ). The correlation between generalized self-efficacy and the average of Holland theme self-efficacy ( $r = .38$ ) was not significantly different from the correlations between generalized self-efficacy and the Investigative theme ( $r = .33$ ;  $t[310] = -1.05, p < .15$ ) or the Enterprising theme ( $r = .33$ ;  $t[310] = -1.20, p < .15$ ).

### Multiple Regression Analyses

Multiple regression analyses were performed to expand upon the understanding of the relation between Holland theme self-efficacy and generalized self-efficacy. All six Holland scores were entered simultaneously into an equation predicting generalized self-efficacy. The only significant predictors of generalized self-efficacy were Investigative confidence ( $\beta = .27, p < .001$ ) and Enterprising confidence ( $\beta = .21, p < .01$ ). The results are displayed in Table 4.

## Hypothesis 2

### Correlational Analyses

Correlations among generalized self-efficacy, locus of control, self-esteem, optimism, and Neuroticism are displayed in Table 5. Partial correlations controlling for social

Table 4. Summary of Multiple Regression Analysis for the Prediction of Generalized Self-efficacy by Holland Theme Self-Efficacy ( $n = 313$ )

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Realistic Confidence	-.07	.07	-.07
Investigative Confidence	.27	.07	.27**
Artistic Confidence	-.04	.07	-.04
Social Confidence	.14	.07	.12
Enterprising Confidence	.24	.08	.21*
Conventional Confidence	.09	.08	.09

Note.  $R^2 = .19$ .

\* $p < .005$ . \*\* $p < .001$ .

Table 5. Intercorrelations Among Five Dispositional Variables

Variable	1	2	3	4	5	6	7
1. Neuroticism	—	-.17	.48	.37	-.58	-.69	-.56
2. Internality	-.17	—	-.24	-.07	.35	.20	.40
3. Chance	.48	-.24	—	.62	-.53	-.38	-.45
4. Powerful Others	.38	-.06	.62	—	-.42	-.36	-.40
5. Optimism	-.59	.34	-.53	-.43	—	.57	.53
6. Self-Esteem	-.69	.19	-.38	-.36	.58	—	.51
7. Self-Efficacy	-.57	.41	-.45	-.39	.53	.51	—

Note. Numbers below the diagonal are bivariate correlations ( $ns$  range from 304 to 314). Numbers above the diagonal are partial correlations controlling for social desirability ( $n = 300$ ). All correlations are significant at  $p < .01$  or less, except the correlation between Internality and Powerful Others.

desirability were calculated; it appears that social desirability had no effect on the correlations between these constructs. These partial correlations are also displayed in Table 5.

Correlations between Holland theme self-efficacy, generalized self-efficacy, locus of control, and self-esteem, are displayed in Table 3. The Williams modification of the Hotelling test (Kenny, 1987) was used to test the prediction that generalized self-efficacy would be more strongly related to both self-esteem and locus of control than any individual Holland theme would be. It was found that the correlation between self-esteem and generalized self-efficacy ( $r = .51$ ) was significantly larger than the correlation between self-esteem and the Enterprising theme ( $r = .30$ ;  $t[302] = -3.68, p < .001$ ). Because Enterprising's correlation with self-esteem was the largest of the Holland codes and substantially larger than the next largest one (Conventional theme,  $r = .20$ ), and because of the highly significant difference, it can safely be assumed that the prediction regarding self-esteem and the various forms of self-efficacy is supported.

Regarding locus of control, it was found that the correlation between the Internality Scale and generalized self-efficacy ( $r = .41$ ) was significantly larger than the correlation between Internality and the Enterprising theme ( $r = .19$ ;  $t[302] = -3.56, p < .001$ ). It was found that the correlation between the Chance scale and generalized self-efficacy ( $r = -.45$ ) was significantly larger than the correlation between Chance and the Enterprising theme ( $r = -.18$ ;  $t[302] = 4.38, p < .001$ ). It was found that the correlation between the Powerful Others scale and generalized self-efficacy ( $r = -.39$ ) was significantly larger than the correlation between Powerful Others and the Social theme ( $r = -.17$ ;  $t[302] = 3.14, p < .001$ ). Because these three correlations were the largest between a facet of locus control and a Holland theme



and because of the highly significant difference, it can safely be assumed that the prediction regarding locus of control and the various forms of self-efficacy is supported.

Partial correlations were calculated to answer the question of whether there is support for optimism as a construct independent from Neuroticism, locus of control, self-esteem, and generalized self-efficacy. Specifically, optimism was correlated with each variable individually, while controlling for the other three. This is a very conservative test of independence and the correlations were reduced dramatically. (See Table 6.) Nevertheless, in most cases the correlation remained significant, supporting the argument that optimism is

Table 6. Partial Correlations of Optimism with Other Variables of Interest

Correlated Variable	Bivariate Correlation	Partial Correlation	Controlling for
Neuroticism	-.59**	-.19*	Internality, Chance, Powerful Others, Self-Esteem, Self-Efficacy
Internality	.34**	.23**	Neuroticism, Self-Esteem, Self-Efficacy
Chance	-.53**	-.30**	Neuroticism, Self-Esteem, Self-Efficacy
Powerful Others	-.43**	-.19*	Neuroticism, Self-Esteem, Self-Efficacy
Self-Esteem	.58**	.24**	Neuroticism, Internality, Chance, Powerful Others, Self-Efficacy
Self-Efficacy	.53**	.11	Neuroticism, Internality, Chance, Powerful Others, Self-Esteem

*Note.* For bivariate correlations, *ns* range from 304 to 314. For partial correlations, *ns* range from 296 to 298.

\* $p < .005$ . \*\* $p < .001$ .

an independent construct. Only the correlation between optimism and generalized self-efficacy fell below significance ( $r = .11$ ) after this procedure.

Finally, partial correlations were used to address the prediction that any relations between locus of control, self-esteem, and Neuroticism can be explained by their overlap with self-efficacy and optimism. Self-esteem, Neuroticism, and the three facets of locus of control were correlated with one another while controlling for the other two variables. Although several correlations were drastically reduced from the bivariate correlations, the correlation between Neuroticism and self-esteem remained high ( $r = -.48, p < .001$ ); therefore, the prediction that the relation between Neuroticism and self-esteem could be explained by their overlap with self-efficacy and optimism was not supported. A comparison of the bivariate and the partial correlations of interest are displayed in Table 7.

Table 7. Partial Correlations Between Variables of Interest, Controlling for Optimism and Self-Efficacy

Correlated Variables	Bivariate Correlation	Partial Correlation
Neuroticism and Internality	-.17*	.16*
Neuroticism and Chance	.48**	.17*
Neuroticism and Powerful Others	.38**	.10
Neuroticism and Self-Esteem	-.69**	-.48**
Self-Esteem and Internality	.19*	-.10
Self-Esteem and Chance	-.38**	-.04
Self-Esteem and Powerful Others	-.36**	-.09

*Note.* For bivariate correlations, *ns* range from 304 to 314. For partial correlations,  $n = 299$ .  
\* $p < .01$ . \*\* $p < .001$ .

### Multiple Regression Analyses

Hierarchical regression analyses were used to examine the independence of optimism further. For each equation predicting one of the personality variables in question, all other variables were entered in the first step and optimism was entered in the second step.

Optimism made significant additional contributions to the prediction of Neuroticism ( $\beta = -.17, p < .01$ ), Internality ( $\beta = .28, p < .001$ ), Chance ( $\beta = -.33, p < .001$ ), Powerful Others ( $\beta = -.22, p < .01$ ), and self-esteem ( $\beta = .24, p < .01$ ). Optimism did not contribute only to the prediction of generalized self-efficacy. The results of these regression analyses can be seen in Tables 8-13.

Table 8. Summary of Multiple Regression Analysis for the Prediction of Neuroticism by Other Personality Variables: Examining the Independence of Optimism ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.57			
Internality		.15	.08	.08
Chance		.34	.09	.21***
Powerful Others		-.05	.09	-.03
Self-Esteem		-.80	.07	-.51***
Self-Efficacy		-.24	.05	-.25***
Step 2	.58			
Internality		.20	.08	.11*
Chance		.27	.09	.16**
Powerful Others		-.07	.09	-.04
Self-Esteem		-.70	.08	-.45***
Self-Efficacy		-.22	.05	-.23***
Optimism		-.35	.11	-.17**

\* $p < .05$ . \*\* $p < .005$ . \*\*\* $p < .001$ .

Table 9. Summary of Multiple Regression Analysis for the Prediction of the Internality Scale by Other Personality Variables: Examining the Independence of Optimism ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.17			
Self-Esteem		.04	.06	.04
Self-Efficacy		.23	.03	.44**
Neuroticism		.06	.04	.11
Step 2	.21			
Self-Esteem		-.03	.06	-.03
Self-Efficacy		.19	.03	.37**
Neuroticism		.10	.04	.18*
Optimism		.30	.08	.28**

\* $p < .05$ . \*\* $p < .001$ .

Table 10. Summary of Multiple Regression Analysis for the Prediction of the Chance Scale by Other Personality Variables: Examining the Independence of Optimism ( $n = 307$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.28			
Self-Esteem		-.03	.07	-.03
Self-Efficacy		-.15	.04	-.26**
Neuroticism		.19	.04	.31**
Step 2	.34			
Self-Esteem		.05	.07	.06
Self-Efficacy		-.10	.04	-.18*
Neuroticism		.14	.04	.22*
Optimism		-.41	.08	-.33**

\* $p < .005$ . \*\* $p < .001$ .

Table 11. Summary of Multiple Regression Analysis for the Prediction of Powerful Others Scale by Other Personality Variables: Examining the Independence of Optimism ( $n = 307$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.20			
Self-Esteem		-.10	.06	-.12
Self-Efficacy		-.14	.03	-.26**
Neuroticism		.08	.04	.15
Step 2	.23			
Self-Esteem		-.06	.06	-.06
Self-Efficacy		-.11	.03	-.20*
Neuroticism		.05	.04	.09
Optimism		-.24	.08	-.22*

\* $p < .005$ . \*\* $p < .001$ .

Table 12. Summary of Multiple Regression Analysis for the Prediction of Self-Esteem by Other Personality Variables: Examining the Independence of Optimism ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.51			
Self-Efficacy		.09	.03	.15**
Neuroticism		-.37	.03	-.58***
Internality		.05	.05	.04
Chance		.04	.06	.03
Powerful Others		-.11	.06	-.10
Step 2	.53			
Self-Efficacy		.07	.03	.12*
Neuroticism		-.32	.03	-.50***
Internality		.00	.05	.00
Chance		.08	.06	.08
Powerful Others		-.08	.06	-.07
Optimism		.30	.07	.24***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 13. Summary of Multiple Regression Analysis for the Prediction of Generalized Self-Efficacy by Other Personality Variables: Examining the Independence of Optimism ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.47			
Neuroticism		-.32	.06	-.31***
Internality		.56	.09	.29***
Chance		-.11	.10	-.07
Powerful Others		-.33	.11	-.17**
Self-Esteem		.26	.10	.16**
Step 2	.48			
Neuroticism		-.29	.07	-.28***
Internality		.52	.09	.27***
Chance		-.07	.10	-.04
Powerful Others		-.31	.11	-.16**
Self-Esteem		.21	.10	.13*
Optimism		.24	.13	.11

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

The prediction that any relations between locus of control, self-esteem, and Neuroticism can be explained by their overlap with self-efficacy and optimism was also examined further using hierarchical regression. For each equation, self-efficacy and optimism were entered in the first step; all other variables in question other than the dependent variable were entered in the second step. For the prediction of Neuroticism, significant additional contributions were made by Internality ( $\beta = .11, p < .05$ ), Chance ( $\beta = .16, p < .01$ ) and most dramatically, self-esteem ( $\beta = -.45, p < .001$ ); only Powerful Others did not make a significant additional contribution. For the prediction of self-esteem, a significant additional contribution was made by Neuroticism ( $\beta = -.50, p < .01$ ) but not by any of the locus of control scales. For the prediction of Internality, a significant additional

contribution was made by Neuroticism ( $\beta = .18, p < .05$ ) but not by self-esteem. Likewise for the prediction of Chance, a significant additional contribution was made by Neuroticism ( $\beta = .22, p < .01$ ) but not by self-esteem. Neither Neuroticism nor self-esteem contributed to the prediction of Powerful Others. The results of these regression analyses can be seen in Tables 14-18.

Table 14. Summary of Multiple Regression Analysis for the Prediction of Neuroticism by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.43			
Self-Efficacy		-.34	.05	-.35***
Optimism		-.80	.11	-.40***
Step 2	.58			
Self-Efficacy		-.22	.05	-.23***
Optimism		-.35	.11	-.17**
Internality		.20	.08	.11*
Chance		.27	.09	.16**
Powerful Others		-.07	.09	-.04
Self-Esteem		-.70	.08	-.45***

\* $p < .05$ . \*\* $p < .005$ . \*\*\* $p < .001$ .

### Hypothesis 3

#### Correlational Analyses

Correlations among Extraversion, positive affect, generalized self-efficacy, and the six Holland theme self-efficacies, both bivariate and with social desirability partialled out, are displayed in Table 19. There appeared to be no effect of social desirability. As expected, Extraversion related strongly to positive affect ( $r = .44, p < .001$ ), generalized self-efficacy ( $r$

Table 15. Summary of Multiple Regression Analysis for the Prediction of Self-Esteem by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.39			
Self-Efficacy		.18	.03	.29**
Optimism		.54	.07	.42**
Step 2	.53			
Self-Efficacy		.07	.03	.12*
Optimism		.30	.07	.24**
Internality		.00	.05	.00
Chance		.08	.06	.08
Powerful Others		-.08	.06	-.07
Neuroticism		-.32	.03	-.50**

\* $p < .05$ . \*\* $p < .001$ .

Table 16. Summary of Multiple Regression Analysis for the Prediction of the Internality Scale by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.19			
Self-Efficacy		.15	.03	.30***
Optimism		.21	.07	.19**
Step 2	.21			
Self-Efficacy		.19	.03	.37***
Optimism		.30	.08	.28***
Neuroticism		.10	.04	.18*
Self-Esteem		-.03	.06	-.03

\* $p < .05$ . \*\* $p < .005$ . \*\*\* $p < .001$ .



Table 17. Summary of Multiple Regression Analysis for the Prediction of the Chance Scale by Other Personality Variables ( $n = 307$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.32			
Self-Efficacy		-.14	.03	-.24**
Optimism		-.49	.07	-.40**
Step 2	.34			
Self-Efficacy		-.10	.04	-.18*
Optimism		-.41	.08	-.33**
Neuroticism		.14	.04	.22*
Self-Esteem		.05	.07	.06

\* $p < .005$ . \*\* $p < .001$ .

Table 18. Summary of Multiple Regression Analysis for the Prediction of the Powerful Others Scale by Other Personality Variables ( $n = 307$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.22			
Self-Efficacy		-.13	.03	-.25**
Optimism		-.31	.07	-.28**
Step 2	.23			
Self-Efficacy		-.11	.03	-.20*
Optimism		-.24	.08	-.22*
Neuroticism		.05	.04	.09
Self-Esteem		-.05	.06	-.06

\* $p < .005$ . \*\* $p < .001$ .

Table 19. Bivariate and Partial Correlations Between Extraversion, Positive Affect, and Various Forms of Self-Efficacy

Variable	Extraversion		Positive Affect		
	Bivariate	Partial <sup>a</sup>	Bivariate	Partial <sup>a</sup>	Partial <sup>b</sup>
Positive Affect	.44	.45	--	--	--
Gen. Self-Efficacy	.32	.33	.54	.54	.47
Realistic Confidence	-.05	-.07	.17	.17	.23
Investigative Conf.	-.03	-.03	.24	.24	.29
Artistic Confidence	.10	.10	.20	.20	.18
Social Confidence	.36	.35	.29	.28	.15
Enterprising Conf.	.32	.32	.36	.37	.27
Conventional Conf.	-.06	-.07	.19	.20	.26

Note. For bivariate correlations, *ns* range from 312 to 315.

<sup>a</sup>Controlling for social desirability ( $n = 304$ ). <sup>b</sup>Controlling for Extraversion ( $n = 309$ ).

= .32,  $p < .001$ ), Enterprising confidence ( $r = .32$ ,  $p < .001$ ), and Social confidence ( $r = .36$ ,  $p < .001$ ), but not to the other four Holland theme self-efficacies. However, positive affect related strongly to not only Extraversion (as predicted) but also to generalized self-efficacy ( $r = .54$ ,  $p < .001$ ), and at least slightly to all six Holland themes, which was not predicted. To investigate these relations further, partial correlations controlling for Extraversion were calculated (also shown in Table 19). Indeed, these relations between positive affect and various forms of self-efficacy remained (and in some cases strengthened) after partialing out the effects of Extraversion. Of particular note was the correlation between positive affect and generalized self-efficacy, which was reduced only to .47 after controlling for Extraversion.

### Multiple Regression Analyses

Multiple regression analyses were performed to examine the contributions of several personality variables addressed in Hypotheses 2 and 3 in predicting the various forms of self-efficacy. For each of the seven equations, variables that were not expected to relate to self-efficacy, negative affect, Openness, Conscientiousness, and Agreeableness, were entered in the first step as background. The variables of interest, Extraversion, Neuroticism, locus of control, self-esteem, positive affect, and optimism, were entered on the second step. For the prediction of generalized self-efficacy, significant contributions were made by Openness ( $\beta = .20, p < .001$ ) and Conscientiousness ( $\beta = .54, p < .001$ ), which persisted after entering the variables of interest (see Table 20). Additional significant contributions were made by Neuroticism ( $\beta = -.22, p < .001$ ), Internality ( $\beta = .17, p < .001$ ), Powerful Others ( $\beta = -.15, p < .01$ ), and positive affect ( $\beta = .14, p < .01$ ).

The significant contribution made by Openness to the prediction of Realistic confidence ( $\beta = .22, p < .001$ ) persisted in Step 2 as well (see Table 21). Additional significant contributions were made only by Extraversion ( $\beta = -.18, p < .01$ ) and positive affect ( $\beta = .22, p < .01$ ), and the regression equation explained only 11% of the variance in Realistic confidence. For the prediction of Investigative confidence, significant contributions were again made by Openness ( $\beta = .33, p < .001$ ) and Conscientiousness ( $\beta = .30, p < .001$ ), which persisted after entering the variables of interest (see Table 22). Only Extraversion made an additional significant contribution to the prediction of Investigative confidence ( $\beta = -.15, p < .05$ ). Similarly for the prediction of Artistic confidence, significant contributions were made by Openness ( $\beta = .55, p < .001$ ) and Conscientiousness ( $\beta = .15, p < .01$ ), which

Table 20. Summary of Multiple Regression Analysis for the Prediction of Generalized Self-Efficacy by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.46			
Openness		.31	.07	.20**
Agreeableness		-.01	.06	-.01
Conscientiousness		.71	.06	.54**
Negative Affect		-.35	.05	-.32**
Step 2	.64			
Openness		.21	.06	.14**
Agreeableness		-.04	.06	-.03
Conscientiousness		.49	.06	.37**
Negative Affect		-.07	.05	-.07
Extraversion		.05	.06	.03
Neuroticism		-.23	.06	-.22**
Internality		.34	.08	.17**
Chance		.02	.09	.02
Powerful Others		-.28	.09	-.15*
Optimism		.17	.11	.08
Positive Affect		.16	.06	.14*
Self-Esteem		.04	.09	.02

\* $p < .005$ . \*\* $p < .001$ .

Table 21. Summary of Multiple Regression Analysis for the Prediction of Realistic Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.06			
Openness		.32	.09	.22**
Agreeableness		-.08	.08	-.06
Conscientiousness		.07	.08	.06
Negative Affect		-.11	.06	-.11
Step 2	.11			
Openness		.29	.09	.20*
Agreeableness		.04	.08	.03
Conscientiousness		-.04	.08	-.03
Negative Affect		-.08	.08	-.07
Extraversion		-.26	.09	-.18*
Neuroticism		.07	.09	.07
Internality		.06	.12	.04
Chance		-.17	.13	-.11
Powerful Others		.21	.13	.12
Optimism		-.18	.16	-.09
Positive Affect		.25	.08	.22*
Self-Esteem		.21	.13	.13

\* $p < .01$ . \*\* $p < .001$ .

Table 22. Summary of Multiple Regression Analysis for the Prediction of Investigative Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.18			
Openness		.51	.08	.33**
Agreeableness		-.15	.08	-.11
Conscientiousness		.40	.07	.30**
Negative Affect		-.11	.06	-.10
Step 2	.22			
Openness		.50	.09	.32**
Agreeableness		-.09	.08	-.07
Conscientiousness		.32	.08	.24**
Negative Affect		.01	.08	.01
Extraversion		-.22	.09	-.15*
Neuroticism		-.16	.09	-.16
Internality		.07	.11	.04
Chance		-.01	.13	-.01
Powerful Others		.12	.13	.07
Optimism		.12	.16	.06
Positive Affect		.14	.08	.12
Self-Esteem		-.04	.13	-.03

\* $p < .05$ . \*\* $p < .001$ .

persisted after entering the variables of interest (see Table 23). Only positive affect made an additional significant contribution to the prediction of Artistic confidence ( $\beta = .14, p < .05$ ).

For the prediction of Social confidence, the contribution made by Openness ( $\beta = .30, p < .001$ ) again persisted in Step 2 (see Table 24). Additional significant contributions were made by Extraversion ( $\beta = .26, p < .001$ ) and optimism ( $\beta = .21, p < .01$ ). For the prediction of Enterprising confidence, significant contributions were made by Openness ( $\beta = .17, p < .01$ ) and Agreeableness ( $\beta = -.27, p < .001$ ), which persisted after entering the variables of interest (see Table 25). Only Extraversion made an additional significant contribution to the

Table 23. Summary of Multiple Regression Analysis for the Prediction of Artistic Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.31			
Openness		.84	.07	.55***
Agreeableness		.04	.07	.03
Conscientiousness		.19	.07	.15**
Negative Affect		-.11	.06	-.10
Step 2	.33			
Openness		.81	.08	.53***
Agreeableness		.05	.08	.04
Conscientiousness		.15	.07	.12*
Negative Affect		.00	.07	.00
Extraversion		.03	.08	.02
Neuroticism		.09	.08	.09
Internality		-.06	.10	-.03
Chance		-.09	.11	-.06
Powerful Others		.13	.12	.07
Optimism		.06	.15	.03
Positive Affect		.16	.08	.14*
Self-Esteem		-.03	.12	-.02

\* $p < .05$ . \*\* $p < .005$ . \*\*\* $p < .001$ .

Table 24. Summary of Multiple Regression Analysis for the Prediction of Social Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.12			
Openness		.40	.07	.30***
Agreeableness		.15	.07	.14*
Conscientiousness		.13	.07	.11
Negative Affect		.01	.06	.01
Step 2	.25			
Openness		.34	.07	.25***
Agreeableness		.05	.08	.04
Conscientiousness		.06	.07	.05
Negative Affect		.06	.06	.06
Extraversion		.32	.08	.26***
Neuroticism		.03	.08	.04
Internality		-.08	.10	-.05
Chance		.14	.11	.10
Powerful Others		-.14	.11	-.09
Optimism		.38	.13	.21**
Positive Affect		.12	.07	.11
Self-Esteem		-.09	.11	-.07

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



Table 25. Summary of Multiple Regression Analysis for the Prediction of Enterprising Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.11			
Openness		.23	.08	.17*
Agreeableness		-.32	.07	-.27**
Conscientiousness		.28	.07	.24**
Negative Affect		-.10	.06	-.10
Step 2	.30			
Openness		.19	.07	.14*
Agreeableness		-.37	.07	-.31**
Conscientiousness		.11	.07	.10
Negative Affect		.05	.06	.05
Extraversion		.32	.08	.25**
Neuroticism		-.10	.08	-.11
Internality		.02	.10	.01
Chance		-.14	.11	-.09
Powerful Others		.21	.11	.13
Optimism		.19	.13	.10
Positive Affect		.13	.07	.12
Self-Esteem		.12	.11	.08

\* $p < .01$ . \*\* $p < .001$ .

prediction of Enterprising confidence ( $\beta = .25, p < .001$ ). For the prediction of Conventional confidence, only the contribution made by Conscientiousness ( $\beta = .29, p < .001$ ) persisted in Step 2, and only Extraversion made an additional significant contribution ( $\beta = -.18, p < .01$ ) (see Table 26).

#### Hypothesis 4: Correlational Analyses

Correlations were calculated to examine the relations between Neuroticism, positive affect, negative affect, and self-esteem; these correlations were run both as bivariate correlations and as partial correlations controlling for social desirability (see Table 27).

Table 26. Summary of Multiple Regression Analysis for the Prediction of Conventional Confidence by Other Personality Variables ( $n = 303$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.09			
Openness		.09	.08	.06
Agreeableness		-.24	.08	-.19*
Conscientiousness		.35	.07	.29**
Negative Affect		-.06	.06	-.05
Step 2	.15			
Openness		.06	.08	.04
Agreeableness		-.15	.08	-.12
Conscientiousness		.23	.08	.19*
Negative Affect		.05	.07	.05
Extraversion		-.25	.09	-.18*
Neuroticism		.01	.09	.02
Internality		.13	.11	.07
Chance		-.14	.12	-.09
Powerful Others		.21	.13	.12
Optimism		.16	.16	.08
Positive Affect		.15	.08	.14
Self-Esteem		.19	.13	.13

\* $p < .01$ . \*\* $p < .001$ .

Table 27. Intercorrelations Among Neuroticism, Positive and Negative Affect, and Self-Esteem

Variable	N	PA	NA	SE
Neuroticism	--	-.44	.58	-.69
Positive Affect	-.44	--	-.25	.45
Negative Affect	.58	-.27	--	-.43
Self-Esteem	-.69	.45	-.43	--

Note. Numbers below the diagonal are bivariate correlations ( $n$ s range from 311 to 316). Numbers above the diagonal are partial correlations controlling for social desirability ( $n = 304$ ). All correlations are significant at  $p < .001$ .

There was no evidence for any effect of social desirability, and all predictions were supported. A substantial relation was found between Neuroticism and negative affect ( $r = .58$ ), self-esteem was related positively to positive affect ( $r = .45$ ) and negatively to negative affect ( $r = -.43$ ), and a modest relation was found between positive and negative affect ( $r = -.27$ ). However, there was also a substantial and unexpected relationship between Neuroticism and positive affect ( $r = -.44$ ).

### Hypothesis 5

#### Correlational Analyses

Correlations were calculated to examine emotional intelligence's relations to positive affect, negative affect, and optimism. As predicted, emotional intelligence was found to relate substantially to both positive affect ( $r = .55$ ) and to optimism ( $r = .45$ ). The predicted positive relation between emotional intelligence and negative affect, however, was not supported ( $r = -.19$ ). All of these correlations were completely unchanged when controlling for social desirability. Interestingly, when controlling for optimism the correlation between emotional intelligence and positive affect was reduced only to .45, but when controlling for positive affect the correlation between emotional intelligence and optimism was reduced to .28.

Because emotional intelligence has been described as a type of intelligence (Mayer & Salovey, 1993), correlations were calculated with GPA and ACT scores; although these are not measures of intelligence per se, they are regarded as measures of academic success. However, no significant relation was found with either GPA ( $r = .02$ ,  $n = 301$ ) or ACT score ( $r = -.10$ ,  $n = 271$ ). The relationships between emotional intelligence and other variables in

this study were of interest in an exploratory capacity; these bivariate correlations are reported in Table 28.

### Multiple Regression Analyses

Regression analyses were performed to explore the contributions of various personality variables in the prediction of emotional intelligence. Because little research has been done with this construct, no predictions were made beyond the ones stated above; these analyses were done purely for exploratory purposes. In the first equation, the Big Five

Table 28. Exploratory Correlations of Emotional Intelligence with All Other Variables

Variable	<i>r</i>	<i>n</i>	<i>p</i> <
Neuroticism	-.33	299	.001
Extraversion	.46	299	.001
Openness	.30	299	.001
Agreeableness	.18	299	.005
Conscientiousness	.29	299	.001
Internality	.38	295	.001
Chance	-.31	297	.001
Powerful Others	-.26	297	.001
Optimism	.45	301	.001
Positive Affect	.55	302	.001
Negative Affect	-.19	302	.005
Self-Esteem	.38	300	.001
Generalized Self-Efficacy	.54	301	.001
Realistic Confidence	.14	301	.05
Investigative Confidence	.21	301	.001
Artistic Confidence	.35	301	.001
Social Confidence	.48	301	.001
Enterprising Confidence	.39	301	.001
Conventional Confidence	.18	301	.005
GPA	.01	301	<i>ns</i>
ACT Score	-.10	271	<i>ns</i>

personality factors were entered in the first step and positive affect and optimism were entered in the second step (see Table 29). Significant contributions were made by Extraversion ( $\beta = .36, p < .001$ ), Openness ( $\beta = .32, p < .001$ ), and Conscientiousness ( $\beta = .13, p < .01$ ) which persisted after entering positive affect ( $\beta = .28, p < .001$ ) and optimism ( $\beta = .22, p < .01$ ).

In the second equation, the locus of control variables were entered in the first step and positive affect and optimism were entered in the second step (see Table 30). Significant contributions were made by Internality ( $\beta = .35, p < .001$ ) and Powerful Others ( $\beta = -.18, p < .01$ ) which persisted after entering positive affect ( $\beta = .41, p < .001$ ) and optimism ( $\beta = .15, p$

Table 29. Summary of Exploratory Multiple Regression Analysis for the Prediction of Emotional Intelligence by the Big Five Personality Factors, Positive Affect, and Optimism ( $n = 299$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.39			
Neuroticism		-.31	.08	-.19**
Extraversion		.83	.11	.36**
Openness		.78	.11	.32**
Agreeableness		-.04	.10	-.02
Conscientiousness		.46	.10	.22**
Step 2	.48			
Neuroticism		.01	.09	.01
Extraversion		.53	.11	.23**
Openness		.63	.11	.26**
Agreeableness		.02	.10	.01
Conscientiousness		.26	.10	.13*
Positive Affect		.54	.10	.28**
Optimism		.73	.18	.22**

\* $p < .01$ . \*\* $p < .001$ .

Table 30. Summary of Exploratory Multiple Regression Analysis for the Prediction of Emotional Intelligence by Locus of Control, Positive Affect, and Optimism ( $n = 295$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.22			
Internality		1.06	.16	.35***
Chance		-.34	.18	-.12
Powerful Others		-.54	.20	-.18**
Step 2	.41			
Internality		.63	.15	.21***
Chance		.00	.17	.00
Powerful Others		-.37	.17	-.12*
Positive Affect		.77	.10	.41***
Optimism		.50	.19	.15*

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

< .05). In the third equation, self-esteem and generalized self-efficacy were entered in the first step and positive affect and optimism were entered in the second step (see Table 31). Generalized self-efficacy made a significant contribution ( $\beta = .46, p < .001$ ) that persisted after entering positive affect ( $\beta = .34, p < .001$ ) and optimism ( $\beta = .16, p < .01$ ). In the fourth equation, the six Holland theme self-efficacies were entered in the first step and generalized self-efficacy, positive affect and optimism were entered in the second step (see Table 32). Social confidence made a significant contribution ( $\beta = .36, p < .001$ ) that persisted after entering generalized self-efficacy ( $\beta = .25, p < .001$ ), positive affect ( $\beta = .26, p < .001$ ), and optimism ( $\beta = .13, p < .01$ ).

Table 31. Summary of Exploratory Multiple Regression Analysis for the Prediction of Emotional Intelligence by Self-Esteem, Self-Efficacy, Positive Affect, and Optimism ( $n = 300$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.31			
Self-Esteem		.41	.14	.16*
Self-Efficacy		.74	.09	.46**
Step 2	.42			
Self-Esteem		.03	.15	.01
Self-Efficacy		.44	.09	.28**
Positive Affect		.65	.10	.34**
Optimism		.52	.19	.16*

\* $p < .01$ . \*\* $p < .001$ .

### Hypothesis 6

#### Correlational Analyses

Correlations were run to test the prediction that GPA and ACT scores would be related to the various forms of self-efficacy (see Table 33). Few substantial relations were found; however, there was a notable relationship between ACT score and Investigative confidence ( $r = .39, p < .001$ ).

Because over half the sample were first-year students, there was concern that the weak results for GPA were due in part to many students' GPAs including only two semesters' grades; therefore, these analyses were repeated with first-year students excluded. For this portion of the sample, only generalized self-efficacy correlated significantly with GPA ( $r = .23, p < .01, n = 128$ ).

Table 32. Summary of Exploratory Multiple Regression Analysis for the Prediction of Emotional Intelligence by Holland Theme Self-Efficacy, Generalized Self-Efficacy, Positive Affect, and Optimism ( $n = 300$ )

Variable	$R^2$	$B$	$SE\ B$	$\beta$
Step 1	.31			
Realistic Confidence		-.13	.11	-.08
Investigative Confidence		.19	.10	.12
Artistic Confidence		.14	.10	.09
Social Confidence		.66	.10	.36**
Enterprising Confidence		.38	.11	.21*
Conventional Confidence		.04	.12	.02
Step 2	.51			
Realistic Confidence		-.09	.09	-.05
Investigative Confidence		.00	.08	.00
Artistic Confidence		.22	.08	.14*
Social Confidence		.46	.09	.25**
Enterprising Confidence		.06	.10	.03
Conventional Confidence		.05	.10	.03
Positive Affect		.49	.10	.26**
Optimism		.43	.16	.13*
Generalized Self-Efficacy		.40	.09	.25**

\* $p < .01$ . \*\* $p < .001$ .



Table 33. Correlations Between GPA and ACT score and Various Forms of Self-Efficacy

Variable	GPA		ACT Score	
	<i>r</i>	95% conf.	<i>r</i>	95% conf.
Generalized Self-Efficacy	.13	[.02, .24]	.06	[-.06, .18]
Realistic Confidence	-.10	[-.20, .02]	.18	[.07, .29]
Investigative Confidence	.14	[.02, .24]	.39	[.28, .48]
Artistic Confidence	.00	[-.11, .11]	.07	[-.05, .18]
Social Confidence	.00	[-.11, .11]	-.15	[-.26, -.03]
Enterprising Confidence	.01	[-.10, .12]	.11	[.00, .23]
Conventional Confidence	.00	[-.11, .11]	.25	[.14, .36]

*Note.* For GPA,  $n = 314$  except for correlation with generalized self-efficacy ( $n = 313$ ). For ACT score,  $n = 282$  except for correlation with generalized self-efficacy ( $n = 281$ ).

Of exploratory interest were the relationships between GPA and ACT score and the other variables in the study. GPA correlated significantly with Chance ( $r = -.20, p < .001$ ), optimism ( $r = .18, p < .01$ ), and negative affect ( $r = -.12, p < .05$ ). ACT score correlated significantly with Extraversion ( $r = -.13, p < .05$ ) and Chance ( $r = -.19, p < .01$ ). Because of the modesty of these relationships, no further analyses were done.

#### Multiple Regression Analyses

Regression analyses were performed to test the relative predictive ability of the Holland theme self-efficacies with regard to GPA and ACT score. For the prediction of GPA, significant contributions were made by Investigative confidence ( $\beta = .28, p < .001$ ) and Realistic confidence ( $\beta = -.24, p < .01$ ). However, the regression equation accounted for only 6% of the variance in GPA. For the prediction of ACT score, significant contributions were made by Investigative confidence ( $\beta = .39, p < .001$ ) and Social confidence ( $\beta = -.22, p < .01$ ). These analyses are displayed in Tables 34 and 35.

Table 34. Summary of Multiple Regression Analysis for the Prediction of GPA by Holland Theme Self-Efficacy ( $n = 312$ )

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Realistic Confidence	-.02	.01	-.24*
Investigative Confidence	.02	.01	.28**
Artistic Confidence	.00	.01	.01
Social Confidence	.00	.01	-.02
Enterprising Confidence	.00	.01	.03
Conventional Confidence	.00	.01	-.03

Note.  $R^2 = .06$ .

\* $p < .005$ . \*\* $p < .001$ .

Table 35. Summary of Multiple Regression Analysis for the Prediction of ACT Score by Holland Theme Self-Efficacy ( $n = 280$ )

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Realistic Confidence	-.03	.03	-.07
Investigative Confidence	.17	.03	.39**
Artistic Confidence	.02	.03	.04
Social Confidence	-.11	.03	-.22*
Enterprising Confidence	.03	.03	.06
Conventional Confidence	.03	.04	.06

Note.  $R^2 = .19$ .

\* $p < .005$ . \*\* $p < .001$ .

## DISCUSSION

This study examined the relations between a variety of dispositional variables that have been shown repeatedly to relate to one another, and also to effective human functioning. The variables being studied were self-efficacy, Extraversion, Neuroticism, positive and negative affect, optimism, locus of control, self-esteem, and emotional intelligence. The main objective of the current research was to investigate whether there is support for the conceptualization of an underlying dimension of adaptability that would help explain the relationships between these variables.

One way this was addressed was through factor analysis of the variables under consideration, as well as the other three Big Five personality factors and six Holland theme self-efficacies. Five factors were rotated; all of the variables conceptualized as central to adaptability loaded on one of the first two factors. Evidence for two factors rather than one suggests that the variables do differ in important ways. However, the finding that all the adaptability variables loaded on the first two factors and all the other variables (with the exception of Enterprising confidence) loaded on the remaining three factors is compelling evidence for the conceptualization of the underlying dimension of adaptability.

The first factor, Subjective Well-Being, represents adaptive beliefs about oneself and the world. Included in this factor is emotional stability, the tendency not to experience negative emotions, a belief in one's worth as a person, and a belief that good outcomes will occur and that they are not controlled by outside forces. The second factor, Agentic Adaptability, reflects a sense of being effective and influential, and having the ability to accomplish things and impact life events. Agentic Adaptability involves a confidence in being able to be successful across a wide range of endeavors, and the belief that one does, in

large part, have control over life events. It also involves the experience of positive emotions, enjoyment in being around people, and the ability to effectively use one's emotional experience in interactions with others.

These two factors may contribute in slightly different ways to adaptability; the first seems to represent a positive belief system and self-concept, whereas the second reflects action one takes in achieving adaptability. In addition, positive and negative affect have been conceptualized as distinct and independent dimensions rather than two poles of a single dimension; their loading on separate factors provides evidence for this theoretical conceptualization. As would be expected, Extraversion loaded on the same factor as positive affect and Neuroticism loaded on the same factor as negative affect.

Although examination of the underlying construct of adaptability was primary, the results of the factor analysis concerning confidence for the six Holland themes were interesting as well. Meta-analytic findings have demonstrated that Extraversion has robust relationships with Enterprising and Social interest, and Openness has robust relationships with Investigative and Artistic interest (Larson et al., 2001). Because interest for a particular Holland theme is related to but distinct from confidence for that theme (Betz, Harmon, & Borgen, 1996; Swanson, 1993), comparison of these two types of results is illuminating. In the current research, Enterprising confidence loaded on the same factor as Extraversion; the two were also shown to be related in other analyses (described below).

Social confidence, however, loaded on a factor with Artistic confidence and Openness, although other results in the current study have demonstrated a relationship between Social confidence and Extraversion. Artistic confidence loaded on the same factor as Openness, and in regression analyses Openness was shown to be important in the

prediction of both Artistic confidence and Investigative confidence. Examining the differences and similarities in how Holland theme interest and Holland theme confidence relate to the Big Five factors would be a useful way of further exploring the distinction between interest and self-efficacy.

A secondary objective of the current study was to shed light on some of the ongoing controversies surrounding many of the individual variables involved and to contribute to the clarification of their conceptualization. In pursuit of this goal, a number of complex and detailed hypotheses were developed, based on the theoretical and empirical literature. The first hypothesis focused on the relationship between generalized self-efficacy and confidence for the six Holland themes, which is a form of domain-specific self-efficacy. It was expected that these two forms of self-efficacy would be related to one another, based on Judge and colleagues' (Judge et al., 1997; Judge, Locke et al., 1998) theoretical development of the concept of generalized self-efficacy, and that an average of scores across domains would be most closely related to generalized self-efficacy. The results of the current study, however, indicate that some confidence domains are more closely related to generalized self-efficacy than others (see Figure 7). This is important information to consider when thinking about the implications of generalized self-efficacy for a variety of behaviors.

Specifically, confidence for the Enterprising and Investigative themes is more closely related to generalized self-efficacy than is confidence for the other four Holland themes. Statistically speaking, these two themes were the only ones that did not have weaker relationships with generalized self-efficacy than the average of scores did. These results can be interpreted in a couple of different ways. First of all, it could be the case that confidence

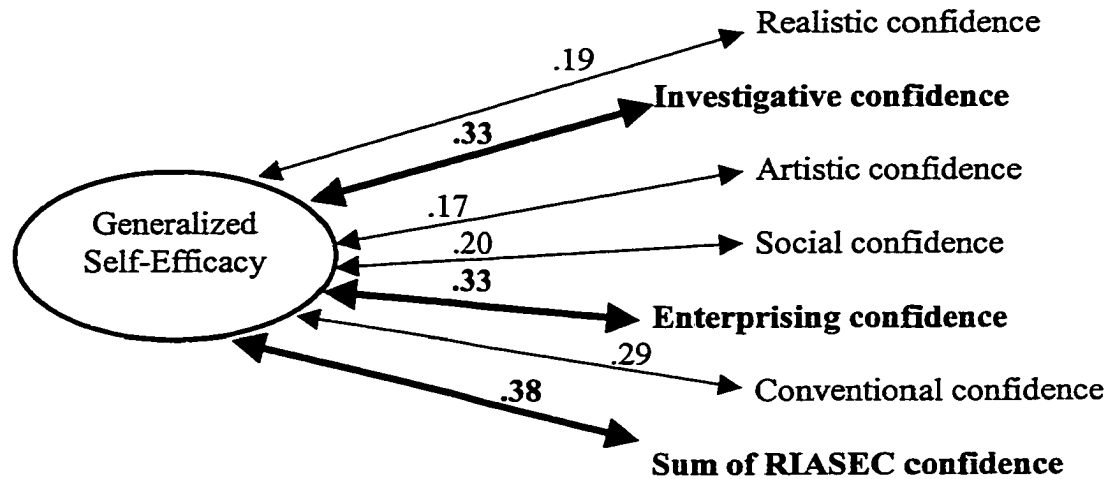


Figure 7. Results for Hypothesis 1

in the areas of math, science, and business contributes to people having a stronger sense of overall efficacy. In other words, people who feel confident in their abilities in these particular domains may be more likely to have confidence in their abilities to succeed in life in general. Another possibility is that the concept of generalized self-efficacy as measured in this study may not reflect confidence for life events in general, but may be subtly more heavily focused on confidence for pursuits in the areas of math, science, and business. However, this seems unlikely as the items on the SES (Sherer et al., 1982) have no contextual content.

The second hypothesis focused on the relationships among self-efficacy, locus of control, self-esteem, optimism, and Neuroticism, variables that have been repeatedly found to interrelate and have been combined in various studies (e.g., Judge, Locke et al., 1998; Major et al., 1998; Wanberg, 1997). The connection between generalized self-efficacy and locus of control is one that has been explicitly emphasized (e.g., Phillips & Gully, 1997) and that was expected to be especially prominent in the current research. Indeed, the correlations of

generalized self-efficacy with the three locus of control scales were substantial ( $r = .41$  for Internality,  $r = -.45$  for Chance,  $r = -.39$  for Powerful Others). Furthermore, all three locus of control scales were more strongly related to generalized self-efficacy than to any of the Holland theme self-efficacies. This lends support for the conceptualization of generalized self-efficacy and locus of control as sharing the common element of adaptability, which is not necessarily associated with confidence for the six Holland themes.

The connection between generalized self-efficacy and self-esteem is one that has been explored in depth as well (e.g., Judge, Erez, & Bono, 1998). As predicted, the relationship between these two variables was strong ( $r = .51$ ), and significantly stronger than the correlation of self-esteem to confidence for any of the Holland themes. This suggests that self-esteem also shares this underlying element of adaptability. However, self-esteem did exhibit a notably substantial relationship with Enterprising confidence ( $r = .30$ ), suggesting that people who are confident in their ability to succeed in business-related pursuits are more likely to have higher estimations of their self-worth overall. Indeed, among the six Holland themes, Enterprising confidence seems to be the one most closely related to several of the broader traits under consideration. The implications of Enterprising confidence for successful functioning in general should definitely be explored in greater detail.

As expected, optimism was found to have substantial relationships with self-efficacy, locus of control, self-esteem, and Neuroticism. Much more remarkable, however, was the convincing evidence in support of conceptualization of optimism as an independent and unique construct. When partial correlations were calculated for optimism with each other variable while controlling for the effects of all the remaining variables, the correlation coefficients were reduced but remained significant, with the exception of the correlation

between optimism and generalized self-efficacy. This is a very rigorous test of the independence of optimism, because any overlap in variance is removed. The only relationship between optimism and another variable that can be explained by overlap with other variables is the one between optimism and self-efficacy.

Unique relationships were not expected between locus of control, self-esteem, and Neuroticism; specifically, it was predicted that any relationships between these variables would be explainable by their overlap with self-efficacy and optimism. For the most part, partial correlations and regression analyses bore out that prediction; however, the negative relationship between Neuroticism and self-esteem remained remarkably strong. Specifically, the bivariate correlation of  $r = -.69$  was reduced only to  $r = -.48$  when controlling for the effect of self-efficacy and optimism. Hierarchical regression analyses demonstrated that Internality and Chance added small but significant predictive power with regard to Neuroticism as well. Therefore, there is convincing evidence that Neuroticism has a unique relationship with self-esteem, and some evidence that Neuroticism has a unique relationship with locus of control.

The third hypothesis dealt with Extraversion's relationships to positive affect, negative affect, and self-efficacy. As predicted, the finding that Extraversion is substantially related to positive affect but unrelated to negative affect was replicated (see Figure 8). This provides support for the conceptualization of positive and negative affect as independent dimensions. Also as predicted, Extraversion was related to generalized self-efficacy and Enterprising and Social confidence, but not to confidence for the other Holland themes. This demonstrates the specificity of confidence for the various Holland themes, because



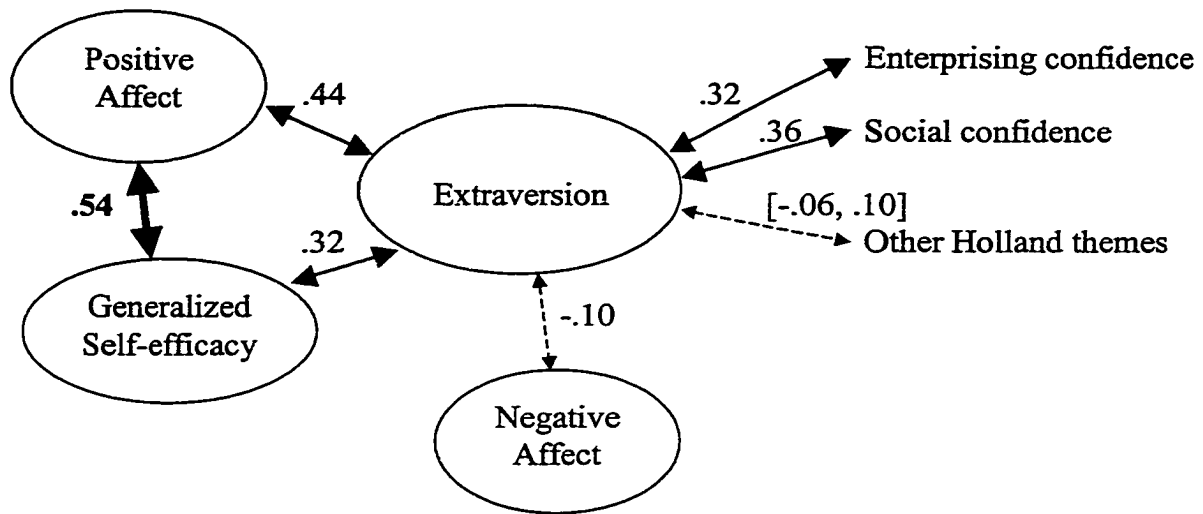


Figure 8. Results for Hypothesis 3

Extraversion is conceptually associated with confidence for Enterprising and Social endeavors but not confidence in the other areas.

However, an unexpected finding was a robust relationship between positive affect and generalized self-efficacy, which was reduced only to  $.47$  when controlling for the effect of Extraversion. Similarly, several of the Holland themes self-efficacies (including Enterprising) exhibited relationships with positive affect that could not be explained by overlap with Extraversion. These unique relationships between positive affect and self-efficacy were unanticipated and warrant additional research. In addition, regression analyses revealed that Openness and Conscientiousness, two of the big five personality factors that were not a focus of this research, consistently made important contributions to the prediction of the various forms of self-efficacy. These are relationships that could also be a fruitful focus of further study.

The foci of the fourth hypothesis were the relationships among positive and negative affect, Neuroticism, and self-esteem. As predicted, a modest negative relationship was found between positive and negative affect (see Figure 9). This is in line with previous research that has demonstrated positive and negative affect to be independent constructs that are slightly negatively related (e.g., Berry & Hansen, 1996). Also as predicted, self-esteem exhibited a substantial negative relationship with negative affect and a substantial positive relationship with positive affect. Although past findings have been ambiguous, these results fit closely with most conceptual characterizations of the nature of self-esteem as involving both the presence of positive emotions and the absence of negative emotions (e.g., Brown & Dutton, 1995; Judge et al., 1996).

Finally, the well-established relationship between negative affect and Neuroticism was replicated, which is in line with theoretical formulations (e.g., Costa & McCrae, 1992) and previous research (e.g., Berry & Hansen, 1996). However, contrary to the theory underlying the structure of affect, a substantial negative relationship was found between

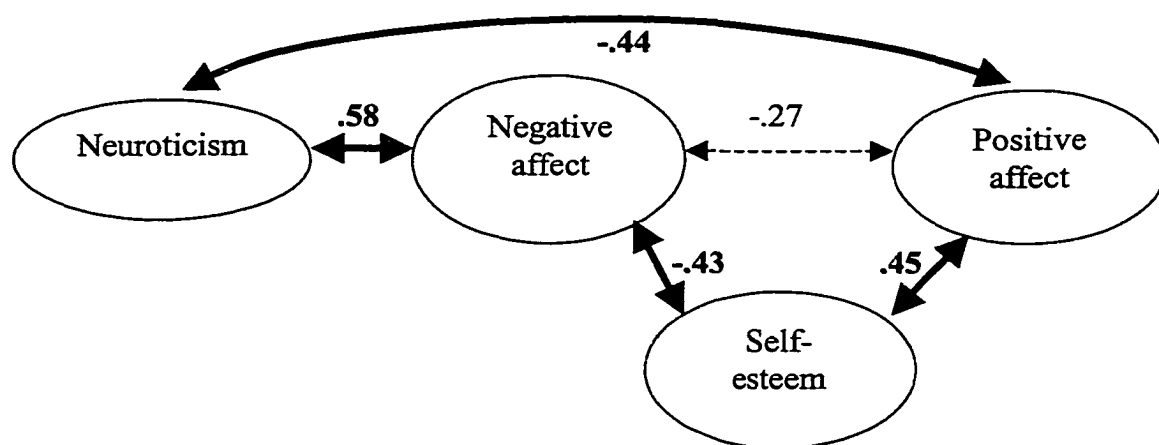


Figure 9. Results for Hypothesis 4

Neuroticism and positive affect. The absence of such a relationship has been used in previous research as evidence of the independence of positive and negative affect (e.g., Watson et al., 1999); the current findings call into question this conceptualization. A substantial body of literature has examined the relationships among positive and negative affect, Extraversion, and Neuroticism. With the exception of this relationship between Neuroticism and positive affect, the results of this study support the theoretical underpinnings of the structure of affect.

Hypothesis Five tested the theoretical formulations of emotional intelligence with regard to the experience of emotion, and also anticipated the replication of the previously reported relationship between emotional intelligence and optimism (Schutte et al., 1998). Based on the assertion that emotional intelligence would be associated with intense experience of both positive and negative emotions (Mayer & Salovey, 1993), it was predicted that emotional intelligence would relate positively to both positive and negative affect. However, this was not borne out in the current study. Positive affect was found to relate positively to emotional intelligence, but a slight negative relationship was found between emotional intelligence and negative affect. Therefore, this research suggests that emotional intelligence does not involve the experience of both positive and negative emotions, but rather indicates positive affect but not negative affect, or even the absence of negative affect.

This interesting finding can be interpreted in two general ways. First, the relationship between emotional intelligence and subjective experience of emotion may need to be reevaluated. Clearly the findings of this study suggest that the experience of positive emotions has a very different relationship to emotional intelligence than the experience of negative emotions does. It appears that people who have high emotional intelligence do tend

to be higher on positive affect. However, it appears that negative affect is either less common among people who have high emotional intelligence or that it is not related to emotional intelligence at all. This is not in line with the current theoretical formulation of emotional intelligence.

Second, the findings may reflect inadequacy in the measure used, or failure to capture the construct emotional intelligence as it has been conceptualized by theorists. Emotional intelligence has been described as a dynamic quality, involving complex processes of interacting with others, interpreting environmental stimuli, and utilizing emotion in making quick decisions about how to react to situations and solve problems (Salovey & Mayer, 1990). The complex nature of this concept may render it difficult to assess using a static pencil and paper measure. In addition, Petrides and Furnham (2000) have recently criticized the methods by which Schutte et al.'s (1998) measure was constructed and demonstrated that the instrument is not unifactorial and cannot be measuring a general emotional intelligence factor, as the authors purport.

The exploratory investigations into the relationships between emotional intelligence and other variables yielded interesting and somewhat puzzling results as well. Specifically, emotional intelligence was found to relate to *every* construct in the study, including ones that were not a focus here, such as Openness, Agreeableness, and Conscientiousness. In addition to positive affect and optimism, emotional intelligence exhibited especially strong relationships with Extraversion ( $r = .46$ ), generalized self-efficacy ( $r = .54$ ), and Social confidence ( $r = .48$ ) (see Figure 10). In the regression analyses Openness and Internality also stood out as important predictors of emotional intelligence. Recent research using the Multifactor Emotional Intelligence Scale (MEIS; Mayer, Caruso, & Salovey, in press) to

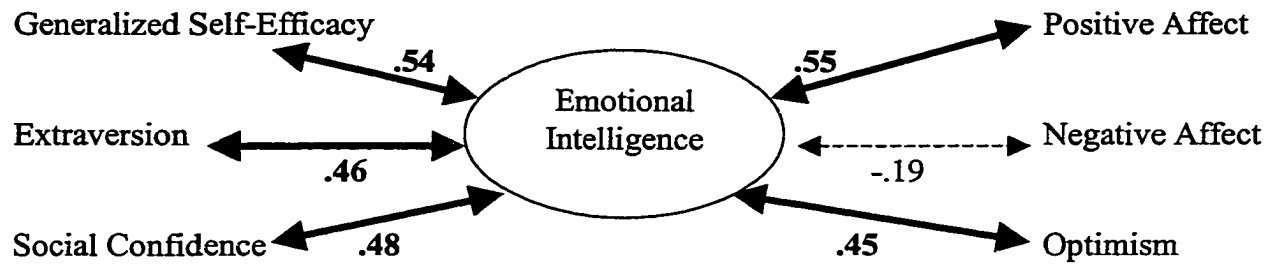


Figure 10. Results for Hypothesis 5

measure emotional intelligence has demonstrated a relationship with Extraversion and self-esteem but not Neuroticism (Ciarrochi, Chan, & Caputi, 2000). These relationships seem compelling and would be an interesting focus of further study. However, the finding in the current research that emotional intelligence correlated significantly with literally every construct in the study calls into question the meaningfulness of any given relationship. Again the question is raised of whether there is a problem with the conceptualization of emotional intelligence as a construct, or with the measure employed in the current research.

Finally, the prediction that emotional intelligence would be related to GPA and ACT score, because of its conceptualization as related to but distinct from other forms of intelligence (Mayer & Salovey, 1997), was not supported. GPA and ACT scores are not measures of intelligence per se, but consistently correlate with traditional measures of intelligence. Other recent research has also failed to find a relationship between emotional intelligence and traditional forms of intelligence (Ciarrochi et al., 2000; Petrides & Furnham, 2000).

Certainly the area of emotional intelligence is one rich with possibilities for future research. Petrides and Furnham (2000) have asserted that the existence of a general

emotional intelligence factor has yet to be convincingly demonstrated. The MEIS (Mayer et al., in press) has been demonstrated to be a useful measure of emotional intelligence, although some subscales appear to have mediocre reliability (Ciarrochi et al., 2000). The Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 1997) has also been demonstrated as a reliable and valid measure of emotional intelligence (Dawda & Hart, 2000). Re-examination of the relationships between emotional intelligence and the other constructs of interest in the current study using alternative measures of emotional intelligence would be quite illuminating.

The sixth and final hypothesis focused on the relationship between self-efficacy and academic success as measured by GPA and ACT score. Substantial research has found support for a relationship between self-efficacy and academic performance (e.g., Lent et al., 1987; Multon et al., 1991); however, the current study demonstrated very limited relationships between these two domains (see Figure 11). ACT score was found to be unrelated to generalized self-efficacy, but did have a substantial correlation with Investigative confidence ( $r = .39, p < .001$ ). Other modest but significant correlations were with Conventional confidence ( $r = .25, p < .001$ ), Realistic confidence ( $r = .18, p < .01$ ), and

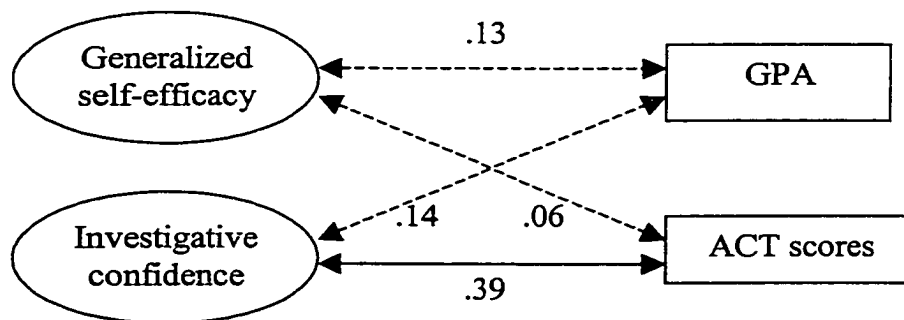


Figure 11. Results for Hypothesis 6

Social confidence ( $r = -.15, p < .05$ ). Interestingly, Social confidence contributed significantly (with a negative valence) to the prediction of ACT score in the multiple regression analyses but Conventional and Realistic confidence did not.

Although quite modest, the strongest correlation for GPA was with Investigative confidence as well ( $r = .14, p < .05$ ); taken in conjunction with its relationship to ACT score, it seems that there may be an important link between confidence in the Investigative area and academic success. The post hoc speculation that the generally non-significant results for GPA may be the result of over half of the sample being first-year students yielded mildly interesting results; when first-year students were excluded, the correlation between GPA and generalized self-efficacy rose to .23 ( $p < .01$ ), suggesting the possibility of a modest relationship between generalized self-efficacy and performance over the college career. However, none of the correlations between GPA and Holland theme confidence were significant when first-year students were excluded.

Overall, the results of this study support the conceptualization of a common element of adaptability that underlies the many characteristics that have been demonstrated to contribute to human functioning. The factor analysis suggests that adaptability may be complex, and may involve two separate dimensions of Subjective Well-Being and Agentic Adaptability, or a certain set of beliefs and an action orientation. The separation in the factor analytic results of variables not expected to be related to adaptability provides compelling evidence for its conceptualization. In addition, when examined individually, the variables of interest in this study have strong relationships with one another that do not summarily exist with other variables that are not expected to be fundamental to adaptability, such as confidence for the six Holland themes. On the other hand, many individual relationship were

found among variables that could not be explained by overlap with other variables in the study, suggesting that most of them may possess unique content that should not be overlooked. Most notably optimism, whose independence as a construct has been questioned (e.g., Judge et al., 1997), convincingly demonstrated a unique contribution.

One fruitful approach for future research would be to examine these characteristics with respect to more general ways of operationalizing adaptability, such as positive mental health over time or successful functioning in a variety of domains. The outcome measure in this study, academic aptitude and performance, was far too narrow a dimension to reliably capture an element of adaptability, even among college students for whom academic success is generally thought to be important. Indeed, few significant relationships were demonstrated between the many variables included in the study and academic success. Defining adaptability and assessing it more directly could provide valuable insight into this issue.

In addition, potential gender differences in the many complex relationships identified in this research should not be overlooked. Several of the variables included exhibited mean gender differences; it is certainly possible that the relationships among variables could be different for men and women as well. Such an investigation would contribute substantially to the understanding of the individual variables as well as the conceptualization of adaptability. Men and women may differ in terms of what variables contribute most substantially to adaptability; this would be extremely valuable information.

Finally, examination of these traits in populations other than college students would be illuminating as well. People in various demographic categories, such as children, working adults, and retired individuals are dealing with vastly different life circumstances that they must adapt to; the traits and characteristics examined here may differ greatly in terms of their



importance for adapting to a different set of situations in life. Furthermore, the sample used in this study was largely Caucasian. Investigation of these relationships with people of other ethnicities would be important as well, because cultures may differ in terms of the values placed on these various traits and characteristics. As a result, some of these variables may exhibit greater or lesser salience to adaptability depending on one's cultural environment.

## APPENDIX: MEASURES

**Self-Efficacy Scale—General Self-Efficacy Subscale (Sherer et al., 1982)**

- 
1. When I make plans, I am certain I can make them work.
  2. One of my problems is that I cannot get down to work when I should. (R)
  3. If I can't do a job the first time, I keep trying until I can.
  4. When I set important goals for myself, I rarely achieve them. (R)
  5. I give up on things before completing them. (R)
  6. I avoid facing difficulties. (R)
  7. If something looks too complicated, I will not even bother to try it. (R)
  8. When I have something unpleasant to do, I stick to it until I finish it.
  9. When I decide to do something, I go right to work on it.
  10. When trying to learn something new, I soon give up if I am not initially successful. (R)
  11. When unexpected problems occur, I don't handle them well. (R)
  12. I avoid trying to learn new things when they look too difficult for me. (R)
  13. Failure just makes me try harder.
  14. I feel insecure about my ability to do things. (R)
  15. I am a self-reliant person.
  16. I give up easily. (R)
  17. I do not seem capable of dealing with most problems that come up in life. (R)
- 

R = reverse scored

**The Positive and Negative Affect Schedule (Watson et al., 1988)**

- 
- |                     |                    |
|---------------------|--------------------|
| 1. Interested (P)   | 11. Irritable (N)  |
| 2. Distressed (N)   | 12. Alert (P)      |
| 3. Excited (P)      | 13. Ashamed (N)    |
| 4. Upset (N)        | 14. Inspired (P)   |
| 5. Strong (P)       | 15. Nervous (N)    |
| 6. Guilty (N)       | 16. Determined (P) |
| 7. Scared (N)       | 17. Attentive (P)  |
| 8. Hostile (N)      | 18. Jittery (N)    |
| 9. Enthusiastic (P) | 19. Active (P)     |
| 10. Proud (P)       | 20. Afraid (N)     |
- 

P = Positive Affect; N = Negative Affect

**Internality, Powerful Others, and Chance Scales (Levenson, 1981)**

- 
1. Whether or not I get to be a leader depends mostly on my ability. (I)
  2. To a great extent my life is controlled by accidental happenings. (C)
  3. I feel like what happens in my life is mostly determined by powerful people. (P)
  4. Whether or not I get into a car accident depends mostly on how good a driver I am. (I)
  5. When I make plans, I am almost certain to make them work. (I)
  6. Often there is no chance of protecting my personal interests from bad luck happenings. (C)
  7. When I get what I want, it's usually because I'm lucky. (C)
  8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power. (P)
  9. How many friends I have depends on how nice a person I am. (I)
  10. I have often found that what is going to happen will happen, [regardless of what I do]. (C)
  11. My life is chiefly controlled by powerful others. (P)
  12. Whether or not I get into a car accident is mostly a matter of luck. (C)
  13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups. (P)
  14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune. (C)
  15. Getting what I want requires pleasing those people above me. (P)
  16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time. (C)
  17. If important people were to decide they didn't like me, I probably wouldn't make many friends. (P)
  18. I can pretty much determine what will happen in my life. (I)
  19. I am usually able to protect my personal interests. (I)
  20. Whether or not I get into a car accident depends mostly on the other driver. (P)
  21. When I get what I want, it's usually because I worked hard for it. (I)
  22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me. (P)
  23. My life is determined by my own actions. (I)
  24. It's chiefly a matter of fate whether or not I have a few friends or many friends. (C)
- 

I = Internality; C = Chance; P = Powerful Others

**Self-Esteem Scale (Rosenberg, 1965)**

---

1. On the whole, I am satisfied with myself.
  2. At time I think I am no good at all. (R)
  3. I feel that I have a number of good qualities.
  4. I am able to do things as well as most other people.
  5. I feel I do not have much to be proud of. (R)
  6. I certainly feel useless at times. (R)
  7. I feel that I am a person of worth, at least on an equal basis with others.
  8. I wish I could have more respect for myself. (R)
  9. All in all, I am inclined to feel that I am a failure. (R)
  10. I take a positive attitude toward myself.
- 

R = reverse scored

**Revised Life Orientation Test (Scheier, Carver, & Bridges, 1994)**

---

1. In uncertain times, I usually expect the best.
  2. It's easy for me to relax. (Filler item)
  3. If something can go wrong for me, it will. (R)
  4. I'm always optimistic about my future.
  5. I enjoy my friends a lot. (Filler item)
  6. It's important for me to keep busy. (Filler item)
  7. I hardly ever expect things to go my way. (R)
  8. I don't get upset too easily. (Filler item)
  9. I rarely count on good things happening to me. (R)
  10. Overall, I expect more good things to happen to me than bad.
- 

R = reverse scored

### The Emotional Intelligence Scale (Schutte et al., 1998)

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1. I know when to speak about my personal problems to others.
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.
3. I expect that I will do well on most things I try.
4. Other people find it easy to confide in me.
5. I find it hard to understand the non-verbal messages of other people. (R)
6. Some of the major events in my life have led me to re-evaluate what is important and not important.
7. When my mood changes, I see new possibilities.
8. Emotions are one of the things that make my life worth living.
9. I am aware of my emotions as I experience them.
10. I expect good things to happen.
11. I like to share my emotions with others.
12. When I experience a positive emotion, I know how to make it last.
13. I arrange events others enjoy.
14. I seek out activities that make me happy.
15. I am aware of the non-verbal messages I send to others.
16. I present myself in a way that makes a good impression on others.
17. When I am in a positive mood, solving problems is easy for me.
18. By looking at their facial expressions, I recognize the emotions people are experiencing.
19. I know why my emotions change.
20. When I am in a positive mood, I am able to come up with new ideas.
21. I have control over my emotions.
22. I easily recognize my emotions as I experience them.
23. I motivate myself by imagining a good outcome to tasks I take on.
24. I compliment others when they have done something well.
25. I am aware of the non-verbal messages other people send.
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.
27. When I feel a change in emotions, I tend to come up with new ideas.
28. When I am faced with a challenge, I give up because I believe I will fail. (R)
29. I know what other people are feeling just by looking at them.
30. I help other people feel better when they are down.
31. I use good moods to help myself keep trying in the face of obstacles.
32. I can tell how people are feeling by listening to the tone of their voice.
33. It is difficult for me to understand why people feel the way they do. (R)

---

R = reverse scored

**Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)**

- 
1. Before voting I thoroughly investigate the qualifications of all the candidates. (T)
  2. I never hesitate to go out of my way to help someone in trouble. (T)
  3. It is sometimes hard for me to go on with my work if I am not encouraged. (F)
  4. I have never intensely disliked anyone. (T)
  5. On occasion I have had doubts about my ability to succeed in life. (F)
  6. I sometimes feel resentful when I don't get my way. (F)
  7. I am always careful about my manner of dress. (T)
  8. My table manners at home are as good as when I eat out in a restaurant. (T)
  9. If I could get into a movie without paying and be sure I was not seen, I would probably do it. (F)
  10. On a few occasions, I have given up doing something because I thought too little of my ability. (F)
  11. I like to gossip at times. (F)
  12. There have been times when I felt like rebelling against people in authority even though I knew they were right. (F)
  13. No matter who I'm talking to, I'm always a good listener. (T)
  14. I can remember "playing sick" to get out of something. (F)
  15. There have been occasions when I took advantage of someone. (F)
  16. I'm always willing to admit it when I make a mistake. (T)
  17. I always try to practice what I preach. (T)
  18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people. (T)
  19. I sometimes try to get even, rather than forgive and forget. (F)
  20. When I don't know something I don't at all mind admitting it. (T)
  21. I am always courteous, even to people who are disagreeable. (T)
  22. At times I have really insisted on having things my own way. (F)
  23. There have been occasions when I felt like smashing things. (F)
  24. I would never think of letting someone else be punished for my wrongdoings. (T)
  25. I never resent being asked to return a favor. (T)
  26. I have never been irked when people expressed ideas very different from my own. (T)
  27. I never make a long trip without checking the safety of my car. (T)
  28. There have been times when I was quite jealous of the good fortune of others. (F)
  29. I have almost never felt the urge to tell someone off. (T)
  30. I am sometimes irritated by people who ask favors of me. (F)
  31. I have never felt that I was punished without cause. (T)
  32. I sometimes think when people have a misfortune they only got what they deserved. (F)
  33. I have never deliberately said something that hurt someone's feelings. (T)
- 

T = items for which a "true" response should be given a point.

F = items for which a "false" response should be given a point.

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