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# Affective, cognitive, and performance consequences of self-selected self-handicaps.

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Affective, Cognitive, and Performance Consequences  
of Self-Selected Self-Handicaps

by

Kelly T. Powell

A Thesis  
Submitted to the Faculty of Graduate Studies and Research  
through the Department of Psychology  
in Partial Fulfillment of the Requirements for  
the Degree of Masters of Arts at the  
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Windsor, Ontario, Canada

2003

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## Abstract

Self-handicapping is defined as the construction of obstacles or impediments to successful performance by an individual to protect or enhance self-esteem or self-image (Berglas & Jones, 1978, Rhodewalt, Morf, Hazlett & Fairfield, 1991). Individuals who self-handicap may protect their self-esteem and self-image after failure by attributing the failure to the handicap rather than to an internal factor such as lack of ability. On the other hand, individuals who self-handicap and succeed may enhance their image and esteem because they succeeded despite the impediment of a handicap. The purpose of this research study was to explore the consequences of engaging in a behavioral self-handicapping strategy. An earlier study by Drexler, Ahrens and Haaga (1995) investigated the effect of self-handicapping on positive and negative affect. This study is a replication of that investigation, but in addition to positive and negative affect, test performance, test performance attributions, and self-efficacy were measured. Self-esteem and tendency to self-handicap served as covariates. Self-selected handicaps were examined in a quasi-experimental design. Participants chose whether to self-handicap or not by selecting either perceived distracting or enhancing music. Participants completed pre-test measures of positive affect, negative affect, self-esteem, and tendency to self-handicap. A practice test composed of items from the Diagnostic and Spatial Relations Aptitude Test (DSRAT) provided a pre-test measure of performance. After completing the pre-test measure of performance, participants chose to listen to either perceived performance-distracting or perceived performance-enhancing music while completing the DSRAT performance test. Upon completion of the test and receiving false failure feedback, positive and negative affect, performance attributions, self-efficacy, and test performance were

measured. The data were examined by analyses of covariance with situational self-handicapping (i.e., choice of music) as the quasi-independent variable and self-esteem and tendency to self-handicap as covariates. Contrary to the hypotheses, situational self-handicapping was not significantly related to any of the dependent variables. Self-handicapping did not appear to act as a protective buffer for these variables. Two possible explanations for these findings are discussed. The first explanation is that the results are correct in suggesting that self-selected self-handicaps do not serve as a protective buffer for the variables measured. The second explanation explores the possibility that problems with the method did not allow for an effective test of the hypotheses, whether or not they do reflect on the truth about self-handicapping as a protective buffer. This explanation includes a methodological analysis of various aspects of the study.

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## Introduction

A self-handicapping strategy is any action or choice of performance setting that enhances the opportunity to externalize (excuse) failure and to internalize (reasonably accept credit for) success (Berglas & Jones, 1978). Thus, self-handicapping occurs when an individual acquires or claims an impediment that will interfere with successful performance in order to protect a desired self-image (Rhodewalt, Morf, Hazlett, & Fairfield, 1991). Acquired and claimed impediments to success are known as self-handicaps (Rhodewalt et al., 1991). Self-handicaps are attempts by a person to select or create performance settings that make feedback ambiguous so that image and esteem are protected (Feick & Rhodewalt, 1997). To achieve ambiguous performance settings, self-handicapping strategies take advantage of what attribution theorists refer to as the discounting and augmenting principles of attribution theory (Kelley, 1972). The discounting principle of attribution theory states that the perceived role of a given cause in producing a given effect is discounted or minimized if other plausible causes are also present (Kelley, 1972). The augmenting principle states that the perceived role of certain causes, such as effort or ability, is augmented or enhanced if other factors are present that would be perceived as inhibiting the effect (Hewstone, 1983). Consequently, in the case of failure with a self-handicap, the person's image and esteem are protected because ability is discounted as a likely cause, and, instead, the failure is attributed to an external, non-ability cause, namely the self-handicap. In the case of success with a self-handicap, the person's image and esteem are augmented or enhanced because he/she succeeded despite that handicap and can attribute the success to internal, ability causes (Rhodewalt et al., 1991). A common example of self-handicapping cited in the literature is a student who stays out late partying the

night before an exam (e.g., Feick & Rhodewalt, 1997). If the student fails, the failure can be attributed to factors other than ability (i.e., ability is discounted), such as fatigue, hangover, and lack of preparation. In the case of success, the student's esteem is enhanced because the student did well despite the presence of the handicap (i.e., ability is augmented).

There are two types of self-handicapping, behavioral self-handicapping and self-reported self-handicapping (Kimble, Kimble, & Croy, 1998). Behavioral self-handicapping is actively creating a disadvantage for oneself before an evaluation (e.g., consuming alcohol before a test). Self-reported self-handicapping is claiming a disadvantageous condition exists before an evaluation (e.g., reporting high test anxiety before a test). One approach to self-handicapping is to view it as an individual difference variable. For example, the variable has been measured by the Self-Handicapping Scale (Rhodewalt, 1982). Another approach is to view self-handicapping as an experimental variable. In this case, one can distinguish between whether the handicap is experimentally imposed on participants or self-imposed (i.e., self-selected) by participants (Drexler, Ahrens, & Haaga, 1995). In the case of the former, the experimenter randomly assigns participants to either a handicap present condition or a handicap absent condition. With self-selected handicaps, the participant chooses whether or not to self-handicap, for example, by choosing whether to practice or not before an unfamiliar task. In these studies, the choice of whether or not to self-handicap serves as a quasi-experimental variable. The vast majority of investigations have focused on experimentally imposed self-handicaps. This experimental research has examined the consequences of self-handicapping, including the effects of self-handicapping on mood, self-esteem, and performance attributions.

The present study examined self-selected handicaps as opposed to experimentally imposed handicaps. Little research has focused on self-selected self-handicaps, and even fewer studies have investigated their consequences. An experiment by Drexler et al. (1995) examined the affective consequences of self-selected, behavioral handicaps. In their study, participants were asked to choose between music that was described as enhancing performance and music described as distracting to performance. Participants chose a cassette to listen to during completion of a spatial relations task which had been described as a “valid predictor of college and career success.” All participants were given failure feedback upon completion of the task. Drexler et al. examined the effects of self-handicapping on mood. They found that participants who self-handicapped (i.e., chose the distracting music) and received failure feedback were less likely to show a decrease in positive affect than those who did not self-handicap (i.e., chose the enhancing music). There were no significant differences regarding negative affect. The present study was designed to replicate and extend the Drexler et al. (1995) study. The purpose of this study was to examine the consequences of self-selected behavioral handicaps. However, in addition to examining the effects of self-handicapping on mood, this study examined the effects of self-handicapping on performance attributions, self-efficacy, and test performance. Self-handicapping theory and research suggest that self-handicapping behavior should influence the above variables in addition to affect.

In the remainder of this chapter, research and theorizing on self-handicapping will be reviewed. The review will include the following sections: (a) the motives underlying self-handicapping, (b) the predictors of self-handicapping, (c) the short-term effects of self-handicapping on mood, performance attributions, self-esteem, self-efficacy, and test

performance, (d) the long-term consequences of engaging in self-handicapping behavior, and (e) the statement of objectives and hypotheses.

### *Why Do People Self-Handicap?*

The primary motives for the use of a self-handicapping strategy may be either self-protection or self-enhancement (Berglas & Jones, 1978, Hirt, Deppe, & Gordon, 1991; Kolditz & Arkin, 1982). The goal of self-handicapping as a protective strategy is to protect self-esteem (Berglas & Jones, 1978; Tice, 1991). Self-handicapping presumably occurs when self-esteem is threatened, particularly on important self-relevant dimensions (Snyder, Smith, Augelli, & Ingram, 1985; Tice, 1991). For example, Feick and Rhodewalt (1997) had college students complete a checklist of claimed self-handicaps prior to an in-class exam. After the graded exams were returned, the students' self-esteem were measured. Feick and Rhodewalt found that students who failed the exam and self-handicapped had higher self-esteem than students who failed the exam without self handicapping. The authors interpreted this finding as suggesting that people protect their self-esteem by making external attributions for failure to self-handicaps rather than to ability. Further support for this position is provided by studies of self-attributions after failure. For example, in a study by Rhodewalt et al. (1991), high self-handicappers (as measured by the Self-Handicapping Scale) discounted ability attributions after failure, indicating a desire to protect self-esteem, whereas low self-handicappers did not show evidence of discounting ability attributions after failure.

A second motive for self-handicapping is self-enhancement. People have a need to enhance feelings of personal worth and effectiveness (Hewstone, 1983). This perspective suggests that people aim to enhance their self-image by making internal attributions for

success in the presence of a self-handicap (Hewstone, 1983; Rhodewalt et al., 1991). In a study by Rhodewalt et al. (1991) high self-handicappers (as measured by The Self-Handicapping Scale) who were also high in self-esteem augmented ability attributions after success.

There is a debate about the relative importance of self-concern and social-concern as underlying self-handicapping tendencies. Self-concern refers to a concern with self-evaluation. The actor is concerned with his/her own self-attributions of competence and control (Berglas & Jones, 1978). Social-concern refers to a concern with social-evaluation. The actor is concerned with others' attributions about his/her underlying competence (Berglas & Jones, 1978). On one side of the debate, Berglas and Jones (1978) argue that the primary motive to self-handicap is self-concern rather than social-concern. In their study, they found that participants selected a behavioral self-handicap under private conditions, suggesting that participants were motivated by concerns of self-evaluation. However, Berglas and Jones (1978) acknowledge that self-handicapping may be motivated by social-concern as well and thus may be augmented by the presence of an audience.

However, Kolditz and Arkin (1982) believe that social-concern (social-evaluation) is a stronger motive for self-handicapping than self-concern (self-evaluation). They view self-handicapping as a form of impression management. In their study, participants worked on analogies and could select whether or not to self-handicap by choosing a debilitating drug. The participants who worked on unsolvable problems were more likely to self-handicap when the experimenter was present and they believed the experimenter would have access to their scores than when these two conditions were not met. According to Kolditz and Arkin,

participants in this group were concerned with projecting a desirable image to the experimenter, thus indicating a concern with social-evaluation. Those participants who did not have an experimenter present were less likely to self-handicap. Kolditz and Arkin suggest that the participants in this group apparently were not concerned with projecting a desired image to the experimenter, as the experimenter was not present and would not know their scores. In fact, self-handicapping was almost totally restricted to circumstances in which the experimenter witnessed the choice. Kolditz and Arkin (1982) suggest that the presence of an audience, thus a concern with social-evaluation, may be a necessary prerequisite for self-handicapping to occur.

Both self-evaluation and social-evaluation may be viable motives for self-handicapping (Sanna & Mark, 1995; Tice, 1991). In a series of three studies, Sanna and Mark (1995) distinguished between participants' self-evaluation motives and social-evaluation motives for self-handicapping. They found that both social-evaluation and self-evaluation increased the use of self-handicaps among high self-handicappers (measured by The Self-Handicapping Scale). If no evaluation was possible by either source, meaning that the experimenter and the participant would not know the final test score, relatively low levels of self-handicapping occurred. Thus, Sanna and Mark (1995) suggest that high self-handicappers were more attuned to the potential self-evaluative and social-evaluative motives of self-handicapping.

Based on the literature, it appears that self-handicapping occurs for both self-protective and self-enhancement motives. There remains a debate whether self-concern or social-concern motives may be more important, but many researchers have acknowledged that both self-

protection and self-enhancement are important motives. Another area of research on self-handicapping aims to predict when self-handicapping is likely to occur.

### *Predictors of Self-Handicapping*

Several studies have examined factors that influence one's tendency to adopt a self-handicapping strategy (Kolditz & Arkin, 1982; Midgley & Urdan, 1995; Tice, 1991).

Researchers suggest that one's tendency to engage in self-handicapping behavior is affected by self-esteem (see Harris & Snyder, 1986; Midgley & Urdan, 1995; Spalding & Hardin, 1999), self-efficacy (see Sanna & Mark, 1995; Snyder, 1990), personal achievement goals (see Midgley & Urdan, 1995), the salience of a public or private audience (see Kolditz & Arkin, 1982; Mello-Goldner & Wurf, 1997), and gender (see Harris & Snyder, 1986; Hirt et al., 1991; Snyder et al., 1985).

Research indicates the existence of a relationship between self-esteem and self-handicapping. Several studies that have examined self-esteem as a predictor of self-handicapping behavior provide evidence that those who are low in self-esteem or are uncertain about their self-esteem are more likely to engage in self-handicapping strategies (Harris & Snyder, 1986; Midgley, Arunkumar, & Urdan, 1996; Spalding & Hardin, 1999).

There is some research on the relationship between self-efficacy and tendency to self-handicap. A person who anticipates failure or is uncertain about success may use self-handicapping (Snyder, 1990). In the literature reviewed, one study did examine the relationship between self-handicapping and academic efficacy. Midgley and Urdan's (1995) study of eighth grade students provided evidence of a negative correlation between one's use of self-handicapping strategies and one's sense of academic efficacy. Several studies reviewed

provide evidence that low self-efficacy may increase one's tendency to engage in self-handicapping behavior (Sanna & Mark, 1995; Snyder, 1990).

Individuals' perceptions of personal achievement goals and their perceptions of the goals of the situation also appear to relate to their tendencies to self-handicap. Thus, a desire for external evidence of success (extrinsic personal goals) or a performance focus may increase one's tendency to self-handicap on academic tasks (Midgley & Urdan, 1995).

A consistent predictor of self-handicapping is the participant's awareness of a private or public internal audience (Kolditz & Arkin, 1982; Mello-Goldner & Wurf, 1997). These studies have shown that individuals who perceive the private internal audience as salient are more likely to self-handicap under private conditions, whereas individuals who perceive the public internal audience as salient are more likely to self-handicap under public conditions.

The majority of the literature concerning gender differences in the tendency to self-handicap shows that men self-handicap more than women (Berglas & Jones, 1978; Kolditz & Arkin, 1982; Snyder et al., 1985). One suggestion is that evidence of a gender difference regarding self-handicapping may depend on whether the handicap is behavioral or self-report (e.g. Arkin & Oleson, 1998; Hirt et al., 1991). Hirt et al. found that high self-handicappers (as measured by the SHS), both men and women, showed evidence of self-reported handicapping, but only high self-handicapping men behaviorally self-handicapped. When both self-report and behavioral handicap options were available, both men and women preferred the self-reported over the behavioral handicap. Hirt et al. suggested that self-report handicaps are less costly to the individual. Participants can claim a handicap, but still practice, thereby increasing their chances for success. By doing so, they provided an excuse for poor performance, but did

not sabotage their chances for success. Men may be more willing to accept the risks of a behavioral self-handicap to obtain the self-protective attributions the handicap provides, whereas both males and females may be willing to accept the benefits of the less costly self-report handicaps. Another alternative suggests that women behaviorally self-handicap, but no studies have yet used a handicap that appeals to women (Hirt et al., 1991). Arkin and Oleson (1998) suggested that men may be more sensitive to the negative public image of failure and are therefore more willing to experience the costs associated with behavioral self-handicapping. In addition, men may endorse ability theories more than women and feel more self protective when faced with failure.

In summary, the predictors of self-handicapping include self-esteem, self-efficacy, personal achievement goals, salience of the internal audience, and gender. The research on these factors suggests that low self-esteem and low self-efficacy increases self-handicapping behavior. Possessing extrinsic personal achievement goals may also increase the tendency to self-handicap. Individuals who perceive a private internal audience as salient are more likely to self-handicap under private conditions, whereas individuals who perceive a public internal audience as salient are more likely to self-handicap under public conditions. In addition, research indicates that men tend to behaviorally self-handicap more than women.

### *Consequences of Self-Handicapping*

Up to this point, most of the literature reviewed has focused on factors that predict when self-handicapping behavior is likely to occur. The purpose of the present study was to explore the effects of self-handicapping for the self-handicapper. As noted earlier, this study was a replication and extension of a study by Drexler et al. (1995). Drexler et al. (1995)

examined the effects of self-handicapping on mood. The purpose of this study was to examine the effects of self-handicapping on mood and also on several other possible consequences of self-handicapping, including performance attributions, self-efficacy, and test performance. Self-esteem and the tendency to self-handicap were treated as covariates. The remainder of the literature review focuses on the possible effects of self-handicapping on five variables: (a) mood, (b) performance attributions, (c) self-esteem, (d) self-efficacy, and (e) test performance.

*Self-Handicapping and Mood.* Several studies have investigated the effect of self-handicapping on mood (e.g., Drexler et al., 1995; Feick & Rhodewalt, 1997; Rhodewalt et al., 1991). This research supports the idea that self-handicapping acts as a buffer against the negative affective implications of failure. For example, a study by Rhodewalt et al. (1991), using experimentally imposed handicaps, provided some evidence that self-handicapping can moderate the effects of performance feedback on short term affect. Participants who received success feedback on an intelligence test reported higher positive affect than those who received failure feedback, regardless of whether they self-handicapped or not. However, within the failure condition, those who failed without a handicap reported moderately negative affect, whereas those who failed with a handicap were generally positive, although not as positive as those in the success condition.

In addition, the effect of self-handicapping on mood was assessed in a field study by Feick and Rhodewalt (1997). Feick and Rhodewalt (1997) had college students complete the Self-Handicapping Scale prior to an in-class exam. After the exam, the students' moods were measured. Post-feedback affect was largely related to how well the students performed relative to their expectations, rather than to their self-handicapping scale scores. However, a regression

analysis revealed that participants' moods were even more positive the better they performed, the higher the number of claimed handicaps, and the more internal their performance attributions. Feick and Rhodewalt concluded that self-handicapping can have a positive effect on mood.

The Drexler et al. (1995) study is the only study the researcher is aware of that examined self-selected handicaps and mood. Participants chose between performance facilitating or performance interfering music while working on a test of spatial relations. All participants also received failure feedback. Participants who self-handicapped were less likely to report a decline in positive affect than were participants who did not self-handicap, even after initial affect was statistically controlled. Concerning negative affect, there was a non-significant trend for the negative affect of self-handicappers to increase less than that of non self-handicappers.

The results of these studies lend support to the hypothesis that self-handicapping acts as a buffer against the negative, short-term affective consequences of failure. Similarly, in the present research, it was expected that under failure feedback (all participants received failure feedback), compared with participants who chose not to self-handicap, those who chose to self-handicap would show less of an increase in negative affect and less of a decrease in positive affect.

*Self-Handicapping and Performance Attributions.* Self-handicapping is intended to make performance feedback ambiguous (Feick & Rhodewalt, 1997). To do so, self-handicapping relies on Kelley's discounting and augmenting principles (Kelley, 1972). As noted earlier, this means that when a self-handicapper fails at a task, the individual can

discount the role of ability and attribute the failure to an external non-ability cause (the handicap). On the other hand, when a self-handicapper succeeds at a task, the individual can augment internal ability causes because he/she succeeded despite the presence of the handicap. The research on self-handicapping and performance attributions supports the augmenting and discounting principles.

Research by Feick and Rhodewalt (1997) examined the effect of self-handicapping on student's performance attributions. They had students complete The Self-Handicapping Scale at the beginning of the semester. Then, before the first exam, students completed a measure of claimed self-handicaps. This measure was a checklist of factors that might impede one from displaying one's true abilities. After receiving their test grades, students indicated the major causes of their grades. Feick and Rhodewalt found that the greater number of handicaps claimed before the exam, the less internal were the student's attributions after failure (i.e., consistent with a discounting prediction). On the other hand, the greater the number of handicaps claimed, the more extreme were the student's internal attributions after success (i.e., consistent with an augmentation prediction). Specifically, compared with students who did not claim handicaps, students who claimed relatively high numbers of handicaps before the exam made more external, specific and unstable attributions after failure (i.e., poor performance was attributed to something about the situation, that affects only this incident, and will not be present again in the future). After success, the students who claimed a high number of handicaps made more internal, global and stable attributions than non-self-handicappers (i.e., good performance was attributed to something about them, that influences other areas of life, and will be present again in the future).

Another study by Rhodewalt et al. (1991) also provided evidence of the discounting of ability attributions. Rhodewalt et al. had participants complete the Self-Handicapping Scale followed by random assignment to either a handicap absent or handicap present condition. After an intelligence test, participants' attributions were assessed. The attribution measure assessed the influence of test difficulty, ability, effort, and luck. Only the participants in the handicap absent condition who received failure feedback attributed their performance to lack of ability. Participants in the handicap present condition who received failure feedback indicated that ability was not a factor or only a slight factor. Participants who received success feedback, regardless of handicap condition also judged ability as not a factor or only a slight factor. Those participants who scored high on the Self-Handicapping Scale and received failure feedback indicated a greater influence of bad luck, whereas all other participants stated luck was not or only slightly a factor. Thus, discounting of ability in favor of external factors was shown in this study.

Based on this research, the prediction for this study was that students who self-handicap would show greater discounting of ability as an explanation for that failure than students who did not self-handicap.

*Self-Handicapping and Self-Esteem.* As discussed earlier, self-handicapping is thought to be motivated by anticipated threats to self-esteem (e.g., Arkin & Oleson, 1998; Rhodewalt & Fairfield, 1991). Specifically, participants choose to self-handicap as a way of minimizing the implications of failure for their self-esteem or as a way of enhancing the implications of success for their self-esteem (Berglas & Jones, 1978). If an individual fails, that failure may be attributed to ability and thus may act to lower his/her self-esteem. However, if the individual

fails and has a self-handicap, then the failure may be attributed to the handicap rather than ability. Consequently, the person's self-esteem is protected. If an individual succeeds with a self-handicap, that success is attributed to greater ability as the individual succeeded despite the handicap. Consequently, the person's self-esteem is enhanced (Kelley, 1972).

Several studies have examined the effects of self-handicapping on self-esteem (e.g., Rhodewalt et al., 1991; Zuckerman, Kieffer, & Knee, 1998). Feick and Rhodewalt (1997), for instance, conducted a field study to investigate whether ability attributions mediate the effects of self-handicapping and academic success or failure on self-esteem. In this study, college students completed The Self-Handicapping Scale prior to an academic exam. Among students who failed the exam, those who claimed handicaps, reported greater discounting of ability attributions and higher self-esteem than students who failed the exam without a handicap. Among students who performed better than their expectations, those who claimed handicaps reported augmented ability attributions and enhanced self-esteem. In addition, the self-esteem of both failure and success students was positively related to the number of handicaps claimed, suggesting that self-handicapping was used for purposes of self-esteem protection.

A study by Rhodewalt et al. (1991) examined the effect of self-handicapping during an intelligence test on self-esteem. Self-handicaps were experimentally imposed as the experimenter selected a tape labeled either neutral (handicap absent condition) or very distracting (handicap present condition). After completing the test with the selected music, participants were given either non-contingent success or failure feedback. Participants in the handicap condition, who also received failure feedback, displayed significantly higher self-esteem than did participants who received failure feedback in the absence of a handicap.

Participants who received success feedback were equally positive, regardless of handicap condition. However, the effects of self-handicapping on self-esteem were largely mediated by the participant's ability attributions (see section on attributions). Taken together, these studies suggest that having a self-handicap acts to protect self-esteem. An individual who self-handicaps and then fails can minimize the personal ability implications of that failure. As a result, the individual's self-esteem remains intact.

*Self-Handicapping and Self-Efficacy.* There are two components of self-efficacy theory relevant to self-handicapping (Sanna & Mark, 1995). These are "efficacy expectancies" and "outcome expectancies." Efficacy expectancies refer to personal beliefs about whether a required behavior can be performed, whereas outcome expectancies refer to personal beliefs about whether that behavior will lead to a particular outcome (Bandura, 1986). However, there is very little research analyzing the relationship between self-efficacy and self-handicapping. The research that does examine this relationship looks at efficacy expectancies as predictors of self-handicapping.

The current study attempted to determine whether an individual's choice to self-handicap was related to his/her sense of self-efficacy, specifically his/her sense of self-efficacy for the particular task (i.e., in this case, the spatial relations test). Thus, an individual's beliefs about whether the required behavior can be performed and whether that behavior can be performed successfully (whether one can do well on the test) was the measure of self-efficacy. It was reasoned that self-handicapping might act as a protective buffer for self-efficacy in the same way that it does so for self-esteem. That is, given that one's sense of self-efficacy is a component of one's self-esteem/self-concept, then it was reasoned that self-handicapping

protects a person's self-efficacy against the threatening implications of failure and enhance a person's self-efficacy after success. Thus, the prediction for this study was that those participants who self-handicapped would have a higher sense of self-efficacy regarding spatial relations performance than participants who did not self-handicap.

*Self-Handicapping and Performance.* Rhodewalt and Fairfield (1991) suggest that a likely consequence of adopting a self-handicapping strategy is impaired performance. It is logical to expect, for example, that behavioral self-handicaps such as failing to practice or consuming alcohol would impair performance on a skill relevant task. Also, it is possible that the choice and availability of a handicap may serve to decrease the motivation to perform well and, consequently, contribute to poorer task performance. However, it is also possible that the handicap itself (e.g., the lack of practice or the alcohol consumption) or the act of self-handicapping indirectly facilitates performance by reducing anxiety or lowering concerns about evaluation. The majority of research that has examined actual task performance has examined performance on intellectual tests.

Studies that treat self-handicapping as an individual difference variable and link it to academic performance suggest that self-handicapping tends to impair performance (Midgley et al., 1996; Zuckerman et al., 1998). In a longitudinal study, Zuckerman et al. (1998) examined the relationship between self-handicapping and academic performance. At the end of the year, the GPA scores of college students for the fall and spring semesters were collected. Self-handicapping was measured by scores on The Self-Handicapping Scale. The students also indicated the number of courses they were taking, the number of hours a week they spent studying, and how they prepared for exams. Zuckerman and his colleagues found that higher

self-handicapping scores were related to lower GPAs over time, even after controlling for SAT scores. This relationship was mediated by study habits. That is, high self-handicapping scores were related to less time spent on academic work and to lower efficiency of exam preparation. The reduction in time on academic work is consistent with the possibility that self-handicapping leads to diminished motivation.

Similarly, Midgley et al. (1996) investigated the relationship between self-handicapping and performance. They had eighth grade students complete a self-report measure of self-handicapping. Self-handicapping was negatively related to GPA. Lower achieving students claimed to use self-handicapping strategies more than higher achieving students. Thus, the tendency to self-handicap appears to be related to impaired academic performance, but since the results are correlational, one cannot assume causation.

A study by Rhodewalt et al. (1991) had participants complete The Self-Handicapping Scale prior to an intelligence test. Also, the experimenter played either neutral music (handicap absent condition) or distracting music (handicap present condition) during the test. Non-contingent success or failure feedback was given after the test. Rhodewalt et al. found that participants who scored high on self-handicapping and had low self-esteem had the lowest performance of all participants. The other groups did not differ in performance. However, in a second similar study, Rhodewalt et al. found that high self-handicappers performed better than low self-handicappers in the handicap present condition. In the handicap absent condition, high self-handicappers performed worse than low self-handicappers. It may be that the handicap provided an excuse for the high self-handicappers so that they were able to focus on their performance without worrying about the implications of failure. In the absence of the

handicap, high self-handicappers may have felt more pressure and “choked,” thus, their performance suffered. This suggests that for high self-handicappers, the act of self-handicapping may lead to improved performance.

Isleib, Vuchinich, & Tucker (1988) also investigated the influence of experimentally imposed handicaps on task performance. Isleib et al. randomly assigned participants to an alcohol (handicap present) condition or no alcohol (handicap absent) condition. Participants completed a test of three unsolvable and two solvable problems. Task performance was measured by scores on the solvable problems (performance was determined by whether the answer was correct and response time). Isleib et al. (1988) did not find any significant differences in the number of problems correctly solved or in reaction time across both tasks between those in the handicap present condition and those in the handicap absent condition. That is, there were no differences in the performance of those participants who self-handicapped by consuming actual alcohol and those who did not self-handicap.

The research regarding the relationship between self-handicapping and task performance is contradictory. Isleib et al. (1988) found no differences in the performance of self-handicappers and non-self-handicappers. The research indicating that self-handicapping tends to impair performance is correlational and long term. The focus of this study was on short term consequences. The Rhodewalt et al. (1991) study suggests that for high self-handicappers, the act of self-handicapping may lead to improved performance. However, the Rhodewalt et al. study (1991) examined experimentally imposed handicaps, whereas the focus of this research was on self-selected handicaps. Therefore, no prediction was made regarding the influence of self-handicapping on performance.

*Self-Handicapping and Long-Term Consequences*

Despite the positive short term consequences of self-handicapping in the form of protecting self-esteem and positive mood, Zuckerman et al. (1998) suggest the act of self-handicapping may be detrimental in the long term. Self-handicappers aim to maintain positive feelings about themselves at the cost of dealing effectively with the immediate situation. Zuckerman et al. suggest that self-handicapping does not act as a buffer to self-esteem in the long term. Instead, they suggest that adjustment (as indicated by measures of self-esteem and affect) and self-handicapping form a vicious circle, one reinforcing the other. In two studies, participants completed The Self-Handicapping Scale among a battery of adjustment questionnaires at the beginning and end of the semester. Participants with high self-handicapping scores at the beginning of the semester had lower self-esteem at the end of the semester, suggesting that with time self-handicapping has a detrimental effect on self-esteem. Low self-esteem scores at the beginning of the semester were found to lead to an increase in self-handicapping scores at the end of the semester, suggesting that low self-esteem also serves as a predictor of self-handicapping. Self-handicapping appears to reinforce low self-esteem, and in turn, low self-esteem reinforces the tendency to self-handicap. The researchers suggest that self-handicapping results in lower adjustment which in turn elicits further self-handicapping.

The study by Zuckerman et al. (1998) showed self-handicapping to be associated with low self-esteem, rather than self-handicapping providing a buffer to protect self-esteem. A possible reason for this is that the Zuckerman et al. study was longitudinal. The other studies (e.g. Feick & Rhodewalt, 1997; Rhodewalt et al., 1991) examined the immediate, short-term

effects of self-handicapping. Zuckerman et al. suggest that self-handicapping may provide a buffer to protect self-esteem in the short term, but a long term tendency to self-handicap may act to lower self-esteem. It should be noted that Zuckerman et al.'s study also provides evidence that self-handicapping may have a detrimental long term effect on mood.

In the present study, short term consequences of self-handicapping were investigated. Thus, the predictions made regarding affect were based on the research examining the short-term effects of self-handicapping on affect.

### *Objectives and Hypotheses*

The present study addressed a gap in the current research on self-handicapping. Most studies have focused on motives for self-handicapping or on predicting when an individual will self-handicap. Few studies have examined the consequences of engaging in self-handicapping strategies (e.g., Kimble et al., 1998; Tice, 1991).

In addition, this study used "true" self-handicaps. That is, participants chose for themselves whether to self-handicap or not by selecting between distracting and enhancing music. In the past, most studies have either imposed handicaps by random assignment or classified participants as high or low self-handicappers based on scores on the Self-Handicapping Scale.

This study was an extension of an experiment by Drexler et al. (1995) on the affective consequences of self-selected self-handicapping. The current study used the same quasi-experimental design, but also included additional dependent variables. The quasi-independent variable was whether a participant self-handicapped or not. The dependent variables were positive and negative affect, causal attributions after failure feedback, self-efficacy concerning

spatial test performance, and spatial test performance. Self-esteem and the tendency to self-handicap were treated as covariates. All participants in this study received failure feedback. Research indicates that self-handicapping acts as a buffer for mood, protecting one against the negative implications of failure (e.g., Drexler et al., 1995; Feick & Rhodewalt, 1997; Rhodewalt et al., 1991). Thus, **Hypothesis 1** stated that compared with participants who do not choose to self-handicap, those who choose to self-handicap will show lower scores on the negative affect scale and higher scores on the positive affect scale.

Self-handicapping takes advantage of the augmenting and discounting principles of attribution theory (Kelley, 1972). That is, by self-handicapping, an individual may discount ability as a cause after failure and may augment ability as a cause after success (Berglas & Jones, 1978). **Hypothesis 2** stated that compared with participants who do not choose to self-handicap, those who choose to self-handicap will be more likely to attribute failure to the handicap and less likely to attribute failure to ability.

Self-handicapping may also act as a buffer protecting one's sense of self-efficacy similar to the way it protects mood and self-esteem. That is, the handicap or the act of self-handicapping, may protect one's sense of self-efficacy by acting as a buffer against the threatening implications of failure. **Hypothesis 3** stated that compared with participants who do not choose to self-handicap, participants who choose to self-handicap will have a higher sense of self-efficacy regarding spatial relations performance.

The evidence regarding self-handicapping and test performance is contradictory. Perhaps self-handicapping leads to improved performance by "taking the pressure off" the individual, as suggested by Rhodewalt et al. (1991). On the other hand, perhaps self-

handicapping tends to impair performance, particularly in the long-term, as suggested by Midgley et al. (1996) and Zuckerman et al. (1998). Or perhaps self-handicapping has no effect on performance, as found by Isleib et al. (1988). Because the research in this area is contradictory, no hypothesis was made regarding the effect of self-handicapping on performance.

## Method

### *Overview*

Upon arrival, each participant was greeted by the experimenter and escorted to the experimental room. Participants were told a cover story which specified that the purpose of the study was to examine the effect of music on test performance. This was to ensure that participants would not be aware of the study's focus on self-handicapping until after all dependent measures were completed. After providing informed consent, participants completed some questionnaires that included a pre-test measure of positive and negative affect, the Self-Handicapping Scale and the Rosenberg Self-Esteem Inventory. Once these measures were completed, the participant was permitted six minutes to work on a "preliminary" 20-item spatial ability test. The participant was told that the main ability test would follow shortly afterwards. Then, the participant was shown four music cassettes, each containing the same music, but labeled with either one or two red dots or one or two green dots. The participant was told that the music on the two cassettes with red dots had been found to decrease performance on intelligence tests, whereas the music on the two cassettes with green dots had been found to enhance performance on intelligence tests. The participant was told that the music on the cassettes with two dots tends to have stronger effects than the music on cassettes with one dot. Then, the participant was asked to select one of the four cassettes to listen to during completion of the main ability test (which consisted of 40 items). Just before the participant chose a cassette, the experimenter turned away to ensure that she was blind to cassette selection (i.e., blind to whether the participant had self-handicapped or not). After 12 minutes of working on the main test, the participant's test was scored, and the participant was

given failure feedback. Then, the participant was asked to complete a few questionnaires before leaving the study. These questionnaires were the post-test measures of affect, performance attributions, and self-efficacy. The questionnaires were followed by a thorough debriefing. Each of these measures and the procedure are detailed below.

### *Participants*

Participants were 105 female students randomly selected from the psychology department participant pool at the University of Windsor (female students were selected for practical purposes of availability). The pool consists of students in psychology, each of whom receives course credit for participating in research. Each participant was called by telephone and asked if she would like to participate in a study of the effect of music on how people perform tasks. All participants were assured that participation was entirely voluntary and confidential. Participants who agreed to participate scheduled an appointment with the experimenter. Each student participated individually.

### *Experimental Setting*

The study was conducted in a small room containing two tables and two chairs. Placed on one table was a cassette player and a cardboard box. Inside the cardboard box were four cassette tapes, each labeled with colored dots. The four cassette tapes were arranged right to left beginning with a cassette marked with two red dots, followed by a cassette with one red dot, a cassette with one green dot, and finally a cassette with two green dots.

### *Measures*

During the course of the research the following variables were measured: (a) positive and negative affect; (b) self-esteem; (c) tendency to self-handicap; (d) performance on a

spatial ability test; (e) attributions about test performance; and (f) self-efficacy. The study also included demographic questions regarding age and gender.

*Positive affect and negative affect.* The pre-test positive and negative affect scales were preceded by several distractor scales concerning musical tastes and background appropriate to the cover story. The distractor scales (Appendix A) were those used in the Drexler et al. study. As in the Drexler et al. (1995) study, affect was measured by Watson, Clark, and Tellegen's (1988) Positive and Negative Affect Schedule (see Appendix B). The Positive and Negative Affect Schedule consists of two 10-item scales, one measuring positive affect (e.g., "enthusiastic" and "attentive") and one measuring negative affect (e.g., "distressed" and "afraid"). When used with short term instructions, the questionnaire is sensitive to fluctuations in mood. Participants indicate to what extent each adjective listed describes their feelings at the present time. Responses are placed on a five-point Likert scale ranging from "very slightly or not at all" (1) to "extremely" (5). Scores on each of the scales can range from 10 (very low or no positive/negative affect) to 50 (extremely high positive/negative affect). These scales have been shown to be highly internally consistent across several studies; alpha ranges from  $r = .86$  to  $r = .90$  for positive affect and  $r = .84$  to  $r = .87$  for negative affect. The positive affect and negative affect scales are largely uncorrelated with each other; correlations in 14 samples ranged from  $r = -.12$  to  $r = -.23$  (Watson et al., 1988). Test re-test reliabilities for an eight week interval are  $r = .54$  for the positive affect scale and  $r = .45$  for the negative affect scale (Watson et al., 1988).

*Self-esteem.* This variable was measured by the Rosenberg Self-Esteem Scale (1965; Appendix C). The Rosenberg Self-Esteem Scale is a 10-item scale designed to measure global

self-esteem. The scale involves a four-point Likert response format (“strongly agree”, “agree”, “disagree”, “strongly disagree”). Scores can range from 10 (low self-esteem) to 40 (high self-esteem). The scale is internally consistent ( $\alpha = .82$ ) and temporally stable (test re-test at one week interval,  $r = .82$ ) (Feick & Rhodewalt, 1997).

*Tendency to self-handicap.* This variable was measured by the Self-Handicapping Scale (Rhodewalt, 1982; Appendix D). This scale contains 25 items that assess preferences for self-handicapping behavior. The Scale involves a Likert-type response format, ranging from “disagree very much” (0) to “agree very much” (5). Scores on the Scale can range from 0 to 125. The Scale has been found to be internally consistent (Cronbach’s  $\alpha$ ,  $r = .79$ ) and stable (test-retest reliability at one month,  $r = .74$ ) (Rhodewalt, 1990).

*Performance on a spatial ability test.* Spatial ability performance was assessed using the Diagnostic and Spatial Relations Aptitude Test (DSRAT; Bennett, Seashore, & Wesman, 1972). The DSRAT has been used successfully to induce threats to the self in previous self-handicapping studies (e.g., Sheppard & Arkin, 1989), including the Drexler et al. (1995) study. The DSRAT contains 60 multiple choice items. It has been found to be a reliable test of spatial intelligence. Split-half reliability coefficients range from  $r = .84$  to  $r = .95$  (Bennett et al., 1972). In this study, the preliminary test consisted of 20 items, and the main test consisted of 40 items (Appendix E). To ensure that both tests were similar in level of difficulty, the preliminary test consisted of the first, fourth, seventh and tenth items from each group of 10 items of the DSRAT, whereas the main test consisted of the remaining items from each group of 10 items of the DSRAT. Each test item is of a higher difficulty level than the preceding item. Scores on the preliminary test could range from 0 (no items correct) to 20 (all items

correct). Scores on the main test could range from 0 (no items correct) to 40 (all items correct).

*Attributions about performance.* Attributions were measured by 10 items developed for this study (Appendix F). Although all participants were given failure feedback, some attribution questions (the first five) pertained to whether the participant believed that she had done well on the test. These items were included to increase the likelihood that participants would not believe that the feedback was manipulated by the researcher. Thus, the 10 items were grouped into two sections, A and B. Participants were asked to complete Section A only if they had done well on the test. The items in this section followed the format, “My high performance on the test was due to ...” The items attributed success on the test to the following: (a) high ability, (b) helpful music, (c) practice, (d) luck, and (e) ease of test. Participants were asked to complete Section B only if they had not done well on the test. The items in this section followed a similar format “My low performance on the test was due to ...” The items attributed poor test performance to the following: (a) low ability, (b) distracting music, (c) lack of practice, (d) no luck, and (e) difficult test. These items were rated on a five point scale ranging from “disagree very much” (1) to “agree very much” (5). Items reflecting an internal attribution (ability and lack of practice) were reverse scored. Thus, low scores on the attribution measure reflect an internal attribution, whereas high scores reflect an external attribution. Within each section (A or B) scale scores could range from 5 to 25.

*Self-efficacy.* This measure (Appendix G) was adapted from a previous self-efficacy measure developed by Pintrich and De Groot (1990). Their scale measures student self-efficacy, defined as students’ beliefs that they are able to perform the task and that they are

responsible for their own performance. In the instructions to the measure, participants were required to rate the extent they felt each statement applied to them if they were to take the spatial relations test again (e.g., “I expect I would do very well,” “I’m certain I would understand the problems,” etc.). The original self-efficacy scale ( $\alpha = .89$ ) consisted of nine items regarding perceived competence and confidence in performance of class work. Four items were omitted from the present study because the items were inappropriate for the experimental situation. The wording of the remaining five items was changed slightly to fit the experimental task (i.e., in each item the word “class” was changed to the word “test”). Item responses were measured on a five-point Likert-type scale. Responses could range from five (low self-efficacy) to 25 (high self-efficacy).

### *Procedure*

As each participant arrived, she was greeted by the experimenter (a female graduate student) as follows: “Hello, thanks for coming. You must be \_\_\_\_\_. My name is Kelly Powell; I talked to you on the phone. I’ll be conducting this study, please come with me.”

Upon arrival at the study room, participants were asked to have a seat, and the experimenter stated the following:

For the purposes of standardization, to ensure that everybody hears the same instructions, I will be reading the instructions. In this study, I am investigating the effect of music on performance on an ability test. Previous research has examined the effects of music on other types of performance such as on motor skill tasks and verbal tasks. The purpose of this study is to explore the effect of music on a different kind of task, one that measures what is known as spatial ability. Before we begin, would you please read this consent form and let me know if you have any questions. (Experimenter handed participant the informed consent form, Appendix H)

After the participant provided written consent, the experimenter collected the informed

consent form and said, "Okay, as the consent form indicates, you will be asked to take an ability test. Before you take the test, I would like you to complete some questionnaires. These will include questions about your music background and questions about some other factors that might be related to your music preferences and spatial ability performance." Please read the first page of the packet and then you may begin." (Experimenter handed participant a packet containing the demographic questions, the Positive and Negative Affect Schedule, the Rosenberg Self-Esteem Inventory, and the Self-Handicapping Scale.) After the participant completed the questionnaires, the experimenter collected them and said, "Thank you; in a few minutes you will be taking the Diagnostic and Spatial Relations Aptitude Test, known as the DSRAT. As part of the procedure for completing the Diagnostic and Spatial Relations Aptitude Test, the test developers require the individual, that is you, to obtain some experience with spatial ability items by taking the Diagnostic and Spatial Relations Preliminary Test." Appearing to read from the test manual, the experimenter said, "As the test manual states, we have found that prior exposure and work on spatial ability items are essential to optimize performance on this test. Further, to fully prepare for the test, the test taker should work at full capacity on the preliminary test." Looking up from the test manual, the experimenter handed the participant a sample item from the test and said, "Here is an example of the kinds of items on the test. Could you please read over the example and let me know if you have any questions." After the participant had finished studying the example, the experimenter said, "the preliminary test consists of 20 patterns that can be folded into figures. As your example shows, to the right of each pattern there are four figures. You are to decide which one of these figures can be made from the pattern shown. The pattern always shows the outside of the

figure. In every row there is only one correct figure. For each item, please circle what you feel is the most correct answer. Do you have any questions?" The experimenter then handed the participant the preliminary test and said, "Here is the preliminary test. Please don't begin until I say begin. You have six minutes to work on the items in this test. While you are taking the test, I will sit over here. Please work diligently and do your best. Do you have any questions?" The experimenter took out a stop watch and said, "You may begin. You have six minutes" and started the stopwatch. After six minutes the experimenter said, "Please stop, time is up." The experimenter collected the test and thanked the participant.

The participant was then told,

Now, we will move on to the next part of the study. Notice that in the box on the table there are four cassettes. (Experimenter shows participant the box with the cassettes inside.) While you complete the Diagnostic and Spatial Relations Aptitude Test, you will listen to one of these cassettes. Notice that the four cassettes have colored dots. Several studies have shown the music on the red-labeled cassettes interferes with performance on ability tests. Further, the music on the cassette with two red dots tends to interfere with performance more than the music on the cassette with one red dot. The music on the green-labeled cassettes, on the other hand, has been found to enhance performance on ability tests, and the music on the cassette with two green dots enhances performance more than the music on the cassette with one green dot. Is this clear?

In reality, all four tapes contained the same music. This music (Strauss, 1962) is similar to that which was used in the Drexler et al. (1995) study as well as in previous self-handicapping research (Rhodewalt et al., 1991; Shepperd & Arkin, 1991).

The experimenter then said, "As mentioned before, this study is designed to examine the effects of music on performance on an ability test. As the Diagnostic and Spatial Relations Aptitude Test manual states, (experimenter appears to read from test manual), previous research by Saunders and Jones at the University of North Carolina and Zimmerman, Wheeler,

and Thomas at the University of Saskatchewan has found the Diagnostic and Spatial Relations Aptitude Test to be a reliable and valid predictor of university and career success. Students who do well on this test typically do well in university and in their chosen careers.” The purpose of this statement was to induce a threat to the self. Such a threat has been found to increase subsequent self-handicapping (Arkin & Oleson, 1998; Rhodewalt et al., 1991). The participant was then told,

In a minute I will give you the Diagnostic and Spatial Relations Aptitude Test to take. Please select any cassette tape you wish to listen to. I still need data on all four cassette tapes so it does not matter which cassette you choose. You can pick any of the cassette tapes. Remember the music on the cassettes with red dots decreases performance and the music on the cassettes with green dots enhances performance. When you choose your cassette, remove the cassette from its case and place the cassette in the cassette player and leave the case in the box. Please don't play the cassette yet. Do you have any questions? You may choose a tape now.

The participant was told to leave the case in the box (the case has the identifying dots) to ensure that the experimenter would remain blind to the participant's cassette selection (i.e., whether the participant had self-handicapped or not) until completion of the experiment.

When the participant had placed the cassette in the cassette player, the experimenter said, “Now, I'll give you the Diagnostic and Spatial Relations Aptitude Test. You have 12 minutes to work on this test while you listen to the music you selected. Do you have any questions?”

The experimenter handed the participant the headphones, asked the participant to put them on, and placed the test face down on the table. The experimenter turned on the cassette player and asked if the participant could hear the music (the cassette volume was set at fixed level). Then, the experimenter looked at the stopwatch and said, “You may begin. You have 12 minutes” and started the stopwatch. After 12 minutes, the experimenter said, “Please stop; time is up”

and collected the test. The experimenter then said, "Please stay seated. It will take a few minutes for me to score the test." The experimenter sat down across the room and appeared to score the test. In scoring the responses the experimenter appeared to consult an answer sheet and the test manual. After the test was scored, the participant was given failure feedback in that she was told, "Your final score is based on a combination of factors, such as how many items you answered and how many items you got correct." The experimenter showed the participant a graph (Appendix I) and said, "This is a graph showing how other people have performed on this test. This first page is a graph of Canadian University Normative Data, and this second graph (experimenter shows participant a second graph; Appendix I) shows the performance of the students I have tested so far. I have converted the scores on the test to a scale from zero to 100" (experimenter pointed to scale). "You'll notice that scores that fall between 80 and 100 are considered high, scores between 40 and 70 are considered medium, and scores from zero and 30 are considered low" (experimenter pointed to each section of scale respectively). "These numbers here (experimenter pointed to described numbers) refer to the students who have participated in this study so far; each number is a score for a given student. For example, the person who participated just before you is number 36 (experimenter pointed to number 36) and their score fell here in the medium range" (experimenter pointed to medium range of scale). "You are participant number 37 and your score would be placed here" (experimenter indicated a score in the high end of the low range). "You can see that most of the other students did better than you, but you are at the higher level of the low range."

The experimenter then said, "The next part of the study involves completing a questionnaire" (Experimenter handed participant a questionnaire.) "It includes questions about

the test you just took and your experience with it. Please take all the time you need and let me know if you have any questions.” This questionnaire consisted of measures of positive and negative affect, performance attributions, and self-efficacy.

After the participant completed the questionnaire, the experimenter collected it and said, “That’s the end of that part of the study. Thank you for participating. I really appreciate it. Now I want to ask you some questions about the study.” This was followed by a thorough debriefing, as suggested by Gardner and Aronson (1985). In the debriefing, participants were first asked, “Do you have any questions?” If there were no questions, participants were asked in order, “Was the entire study clear?”; “Did you understand why I gave you each questionnaire?”; and “Did you understand the purpose of the ability test?” Participants were then told, “People react to things in different ways. I would appreciate it if you could tell me how you feel that this study affected you.” Participants were also asked, “Was there any aspect of the study that you found odd, confusing, or disturbing?” If no suspicions were indicated, the experimenter asked, “Do you think there was more to this study than meets the eye?” Any suspicions were explored to determine if the participant’s data were admissible. The experimenter then said, “I want to ask you about the colored dots on the cassette tapes. Do you remember what the red dots meant? Do you remember what the green dots meant?” The purpose of these questions was to assess whether participants understood the meaning of the red and green dots on the cassettes. This was followed by the experimenter saying, “I was interested in exploring some issues that I didn’t discuss with you in advance. One of the major variables in this study concerns self-handicapping. Self-handicapping is when a person creates a disadvantage for themselves before an evaluation. What tape did you choose? That

means....” The remainder of this sentence depended on the particular cassette the participant chose. If the participant chose a cassette with red dots, the experimenter said, “Those tapes were thought to have music that would decrease your performance so that was a self-handicapping strategy. For example, some people may choose to self-handicap to protect themselves from the consequences of getting a low mark or for some other reason.” If the participant chose a cassette with green dots, the experimenter said, “Those tapes were thought to have music that would increase your performance so you did not show a self-handicapping strategy.” All participants were then told, “I was interested in how self-handicapping and believing that you got a low mark on the test affected your feelings and perceptions. Do you have any questions?”

After questions were clarified, participants were asked, “Were there any weaknesses, problems, or fuzziness in the instructions for the tests or questionnaires that you can think of? Were any parts of the procedure confusing?” Before ending the debriefing, participants were asked not to discuss the study with other students who might participate as this could damage the information those participants provide and invalidate the results of the study. All participants were thanked for their participation.

## Results

Before completing the DSRAT and post-test measures of affect, self-efficacy and performance attributions, participants chose one music cassette from among four cassettes labeled with either one red dot, two red dots, one green dot or two green dots. Participants who chose a cassette with one or two red dots were considered to have self-handicapped, whereas participants who chose a cassette with one or two green dots were considered not to have self-handicapped. Of the 105 participants, 34 participants chose to self-handicap; 18 chose the cassette with one red dot (less distracting music), and 16 chose the cassette with two red dots (more distracting music). The remaining 71 participants did not self-handicap; 38 participants chose the cassette with one green dot (less enhancing music), and 33 chose the cassette with two green dots (more enhancing music).

### *Debriefing and Manipulation Checks*

In the debriefing, each participant was first asked if she had any questions regarding the study. There were few questions, but examples of those that were asked included the following: “Were you looking at how I felt about myself?” “Are you going to consider the type of music I chose?” “Were you studying the effects of distractions on how I behaved?” The majority of participants did not have any questions regarding the study.

After having been given the opportunity to ask questions, each participant was asked whether the study was clear and whether she understood the stated purpose of each questionnaire. All participants expressed clear understanding of why each questionnaire or test was given to them. Next, each participant was asked to describe how she thought the study affected her. Responses to this question were grouped into two categories. Some participants

expressed disappointment as they thought they should have been able to perform better on such a test (i.e., DSRAT), particularly in view of the fact that the test was supposed to predict university success. Other participants stated that they did not believe the study affected them and that since their mark does not affect their psychology grade, their performance did not bother them.

Participants were also probed regarding any suspicions regarding the study. Each participant was asked, "Do you think there was more to this study than meets the eye?" Many participants said yes, but none stated that they thought the study involved anything related to self-handicapping. Most participants believed the study involved the effect of distractions that could increase performance and distractions that could decrease performance, or the effect of no distractions on performance. Other participants believed that the study may have examined the effect of an individual's self-concept on performance or involved comparing their spatial ability performance with others across Canada.

As a check to ensure that participants accurately understood the meaning of the cassette labels, participants were asked about the colored dots on each cassette tape. Specifically, each participant was asked what did one red dot mean, what did two red dots mean, what did one green dot mean, and what did two green dots mean? All participants correctly remembered the meaning of each cassette label.

At this point in the debriefing, each participant was told about the true purpose of the study (i.e., self-handicapping). All participants expressed surprise that their performance feedback had been manipulated. The participants indicated that the two graphs that presented their test performance were very convincing. After learning the purpose of the study, each

participant was asked what cassette she had chosen and told what that choice may mean regarding self-handicapping. Most participants accepted the explanation without any comments or questions. A few participants (all of whom chose a cassette with a green dot) asked why anyone would choose the cassette with the red dots. Six participants (all of whom chose a cassette with a red dot) stated that they made their respective choices because they wanted to see how well they could perform with music known to decrease performance. Lastly, the participants were asked if there were any problems or confusing parts throughout the study. No participants indicated any problems or confusion regarding the measures used or any aspects of the procedure. Participants were then thanked for their participation.

A final manipulation check to ensure that participants understood the meaning of their test scores was the performance attribution measure. As discussed in the method section, this measure consisted of two parts, A and B. Participants were instructed to respond to Part A only if they had done well on the test and to respond to Part B if they had done poorly on the test. No participants responded to Part A, indicating that they understood the meaning of the failure feedback.

#### *Internal Consistency Reliability of Measures*

Both the self-efficacy scale and the performance attribution measure were created for this study. Both of these measures achieved satisfactory internal consistency reliabilities:  $\alpha = .77$  for the self-efficacy measure and  $\alpha = .68$  for the performance attribution measure. The reliabilities of the other established measures are reported in the method section.

#### *Effect of Self-Handicapping on Pre-test Variables*

Independent samples t-tests were conducted with the pretest variables as the dependent

measures and situational self-handicapping (i.e., choice of red or green dots) as the independent variable. There were no significant differences between self-handicappers and non self-handicappers on any of the pretest variables: (a) positive affect,  $t(105) = 0.81, p = .42$ ; (b) negative affect,  $t(105) = -0.02, p = .99$ ; (c) self-esteem,  $t(105) = 0.44, p = .66$ ; (d) trait self-handicapping,  $t(105) = 0.32, p = .75$ ; (e) number of items completed on the preliminary test,  $t(105) = -.24, p = .81$ ; and (f) preliminary test score,  $t(105) = -.53, p = .60$ . The means and standard deviations for all pretest variables according to self-handicapping choice are shown in Table 1.

#### *Correlations Among Variables*

Pearson product-moment correlations were calculated among all variables, including situational self-handicapping, dependent variables, and pretest variables. The correlations are shown in Appendix J. Not all of the correlations were as expected, particularly the non-significant correlation ( $r = -.03$ ) between situational self-handicapping and trait self-handicapping (as measured by the SHS). Situational self-handicapping demonstrated only low, non-significant correlations with the other variables as well. In contrast, scores on the trait measure of self-handicapping were significantly correlated with scores on a number of other variables. Trait self-handicapping was positively correlated with both pre-test negative affect and post-test negative affect. It was also negatively related to self-efficacy and self-esteem. That is, participants who scored high in trait self-handicapping also tended to score high in both pre-test and post-test negative affect, but low in self-efficacy and self-esteem.

Many of the other correlations were consistent with an understanding of the meaning of the variables. For example, in addition to its correlation with trait self-handicapping,

Table 1

*Means (Standard Deviations) for Pretest Variables According to Situational Self-Handicapping*

Pretest variable	Situational	
	Self-handicappers	Non self-handicappers
Positive affect (score range: 10 - 50)	30.68 (6.27)	29.55 (6.92)
Negative affect (score range: 10 - 50)	13.21 (5.03)	13.22 (3.40)
Self-esteem (score range: 10 - 40)	33.00 (5.18)	32.55 (4.78)
Self-handicapping (score range: 0 - 125)	57.74 (12.24)	56.90 (12.65)
Number of items completed on practice test (score range: 0 - 20)	13.24 (4.45)	13.47 (4.60)
Number of items correct on practice test (score range: 0 - 20)	7.24 (2.64)	7.53 (2.73)

*Note:* High scores on each scale reflect the variable measured.

self-esteem was significantly associated with self-efficacy, pre and post positive affect, and pre and post negative affect. Participants who scored high in self-esteem also tended to score high on self-efficacy and positive affect, but low in negative affect. There was a positive correlation between self-efficacy and the number of items participants completed on both the practice test and the DSRAT. In addition, self-efficacy was positively correlated with the DSRAT score. These correlations were expected, because intuitively it makes sense that participants with a higher sense of self-efficacy would be able to complete more test items, score higher, and have higher self-esteem.

In summary, the main variable of interest, situational self-handicapping, did not significantly correlate with any of the other variables. Most of the other correlations were consistent with the meaning of the variables.

#### *Principal Data Analysis*

The means and standard deviations of each of the dependent variables for self-handicappers and non-self-handicappers are indicated in Table 2.

Analysis of covariance (ANCOVA) was conducted on each of the following dependent variables: (a) post-test positive affect; (b) post-test negative affect; (c) number of test items completed; (d) test performance score; (e) task specific self-efficacy; and (f) performance attributions. Because not all of the dependent variables were correlated, suggesting that they did not all reflect the same underlying variable, a multivariate analysis of covariance was not warranted. In the ANCOVA, situational self-handicapping was the independent variable, and self-esteem and trait self-handicapping were treated as covariates. A homogeneity of slope test was also conducted to ensure that the assumptions underlying an ANCOVA were not violated.

Table 2

*Means (Standard Deviations) for Dependent Variables According to Situational Self-Handicapping*

	Self-handicappers	Non-self-handicappers
Positive affect (score range: 10 - 50)	25.24 (6.50)	24.25 (7.96)
Negative affect (score range: 10 - 50)	15.18 (4.75)	16.21 (5.69)
Number of items completed on DSRAT (score range: 0 - 40)	30.35 (7.97)	28.86 (8.42)
DSRAT score (score range: 0 - 40)	18.41 (6.13)	19.55 (6.76)
Self-efficacy (score range: 5 - 25)	15.44 (3.85)	14.77 (4.62)
Performance attributions (score range 5 - 25)	13.24 (2.31)	13.25 (2.14)

*Note:* Low scores on the performance attribution measure reflect an internal attribution; high scores on the measure reflect an external attribution. High scores on the remaining scales reflect the variable measured.

The homogeneity test showed that the assumptions were not violated for any of the dependent variables: (a) positive affect,  $F(1, 104) = 0.07, p = .78$ ; (b) negative affect,  $F(1, 104) = 2.10, p = .15$ ; (c) number of test items completed,  $F(1, 105) = 0.12, p = .73$ ; (d) test performance score,  $F(1, 105) = 0.31, p = .58$ ; (e) self-efficacy,  $F(1, 105) = 2.13, p = .15$ ; and (f) performance attributions,  $F(1, 104) = 0.05, p = .83$ .

The results of the ANCOVAs showed non-significant effects of situational self-handicapping on all the dependent variables: (a) positive affect,  $F(1, 102) = 0.18, p = .67$ ; (b) negative affect,  $F(1, 102) = 0.92, p = .34$ ; (c) number of test items completed,  $F(1, 103) = 0.64, p = .43$ ; (d) performance test score,  $F(1, 103) = 0.79, p = .38$ ; (e) self-efficacy,  $F(1, 103) = 0.51, p = .48$ ; and (f) performance attributions,  $F(1, 101) = .001, p = .97$ . The self-esteem covariate was significant for some of the dependent variables, specifically for positive affect,  $F(1, 102) = 15.27, p < .05$  and self-efficacy,  $F(1, 103) = 4.01, p < .05$ . These covariate results are consistent with the individual correlations for self-esteem found in Appendix J. The trait self-handicapping covariate was not significant for any of the dependent variables.

To further reduce the error term in the analysis, the pretest measures of positive affect and negative affect were included as covariates, in addition to self-esteem and trait self-handicapping, in a second series of ANCOVAs. These ANCOVAs likewise showed a non-significant effect of situational self-handicapping on all the dependent variables: (a) positive affect,  $F(1, 100) = 0.001, p = .97$ ; (b) negative affect,  $F(1, 100) = 0.92, p = .34$ ; (c) number of test items completed,  $F(1, 101) = 0.52, p = .47$ ; (d) test performance score,  $F(1, 101) = 0.73, p = .39$ ; (e) self-efficacy,  $F(1, 101) = 6.15, p = .02$ ; and (f) performance attributions,

$F(1, 99) = .002, p = .97.$

Prior to conducting the study, it was reasoned that self-handicapping would act as a buffer, protecting against the negative implications of failure. Thus, participants who self-handicapped were hypothesized to report less negative affect and more positive affect than participants who chose not to self-handicap (Hypothesis 1). Self-handicappers were also hypothesized to attribute performance failure to the handicap, rather than to ability (Hypothesis 2). In addition, self-handicappers were hypothesized to have higher self-efficacy than non self-handicappers (Hypothesis 3). Contrary to these hypotheses, situational self-handicapping did not have a significant effect on any of the dependent variables. Thus, none of the hypotheses were supported. No predictions regarding test performance were made because the research evidence is contradictory.

### *Secondary Analyses*

The previous ANCOVAs showed a non-significant effect of situational self-handicapping on both self-efficacy and performance attributions. Self-efficacy and performance attributions were measured on separate scales, each consisting of five statements. To determine if self-handicapping had an effect on agreement with a particular statement, each statement was individually analyzed by an ANCOVA. The pretest variables of positive affect, negative affect, self-esteem, and trait self-handicapping were treated as covariates.

*Self-Efficacy.* The means and standard deviations for each of the self-efficacy statements are shown in Table 3. High scores on the scale indicated a high sense of self-efficacy. Situational self-handicapping was not a significant factor in any of the analyses. That is, participants who chose to self-handicap did not score significantly different on these

Table 3

*Means (Standard Deviations) for Self-Efficacy Scale Statements*

	Self-handicappers	Non-self-handicappers
1. Compared with other students completing a similar test, I would expect to do well.	3.00 (1.10)	2.84 (1.04)
2. I'm certain I would understand the problems presented in the test	3.41 (0.89)	3.33 (1.07)
3. I expect I would do very well on the test	2.82 (1.06)	2.70 (1.02)
4. I am sure I would do an excellent job on the problems included in the test.	2.74 (0.93)	2.49 (1.04)
5. My performance on the test would improve compared with my performance today.	3.47 (1.02)	3.23 (1.10)

*Note:* Scores could range from 1 to 5 for each self-efficacy statement.

statements than participants who chose not to self-handicap: (a) statement 1,  $F(1, 101) = 0.52$ ,  $p = .48$ ; (b) statement 2,  $F(1, 101) = 0.13$ ,  $p = .72$ ; (c) statement 3,  $F(1, 101) = 0.24$ ,  $p = .62$ ; (d) statement 4,  $F(1, 101) = 1.15$ ,  $p = .29$ , and (e) statement 5,  $F(1, 101) = 0.69$ ;  $p = .41$ .

*Performance attributions.* The means and standard deviations for each statement are shown in Table 4. Low scores on the scale (scores can range from 1 - 5 for each statement) reflect an internal attribution, that is for items 1 - 5 respectively, low scores mean that performance was attributed to lack of ability, not to distracting effects of the music, to not practicing enough, not to lack of luck, and not to the difficulty of the test). Situational self-handicapping was not a significant factor in any of the analyses. That is, participants who self-handicapped did not significantly differ on any of the performance attribution statements than participants who did not self-handicap: (a) statement 1 (low ability),  $F(1, 99) = 0.03$ ,  $p = .85$ ; (b) statement 2 (distracting music),  $F(1, 102) = 0.03$ ,  $p = .85$ ; (c) statement 3 (didn't practice),  $F(1, 99) = 2.11$ ,  $p = .15$ ; (d) statement 4 (unlucky),  $F(1, 102) = 1.27$ ;  $p = .26$ ; and (e) statement 5 (difficult test),  $F(1, 102) = 1.19$ ,  $p = .28$ .

The results of the secondary analyses of the individual statements support the findings of the original ANCOVAs. The main variable of interest, situational self-handicapping, did not significantly affect endorsement of any of the self-efficacy statements or any of the performance attribution statements.

*Power Analysis.* A power analysis revealed that for medium effect sizes, which is consistent with the studies reviewed, the power of this study with unequal sample sizes was .67. Thus, there was a 67% chance of finding a significant effect due to situational self-handicapping if situational self-handicapping affected any of the examined variables.

Table 4

*Means (Standard Deviations) for Performance Attribution Statements*

	Self-handicappers	Non-self-handicappers
1. My low performance on the test was due to lacking ability on these kinds of spatial ability problems.	2.29 (1.00)	2.37 (1.12)
2. My low performance on the test was due to the distracting effects of the music.	2.59 (1.28)	2.64 (1.19)
3. My low performance on the test was due to the fact that I didn't practice enough beforehand.	3.62 (1.30)	3.97 (1.08)
4. My low performance on the test was due to the fact that I was unlucky.	1.59 (1.08)	1.40 (0.74)
5. My low performance on the test was due to the difficulty of the test.	3.15 (1.18)	2.83 (1.27)

*Note:* Scores could range from 1 to 5 for each attribution statement. Items one and three reflect an internal attribution; items two, four, and five reflect an external attribution.

### Discussion

Research on self-handicapping tends to show that self-handicapping acts as a buffer against the threatening implications of failure, protecting a person emotionally, cognitively, and psychologically (e.g., Berglas & Jones, 1978; Drexler et al., 1995; Hewstone, 1983; Rhodewalt et al., 1991). Thus, it was expected in this study that participants who self-handicapped would show the buffering effects in several ways, specifically, in their positive affect, negative affect, self-efficacy, and performance attributions. It was hypothesized that after failure feedback, self-handicappers would show higher positive affect and lower negative affect than non self-handicappers. Also, it was hypothesized that self-handicappers would exhibit a higher sense of self-efficacy and be less likely to attribute their low performance to ability. In this study, no effect of self-selected situational self-handicapping was shown. There were no differences between self-handicappers and non self-handicappers regarding affect, self-efficacy, and performance attributions. Self-handicapping did not appear to act as a protective buffer for these variables. There were also no differences in test performance. Self-handicappers did not perform better or worse than non self-handicappers.

There are at least two general explanations for the non-significant results and the failure to find support for the hypothesized differences between self-handicappers and non self-handicappers. One explanation is that the results are correct in suggesting that self-selected situational self-handicapping does not serve as an effective buffer against the negative affective and cognitive consequences of failure. This possibility, of course, calls into question the theorizing underlying this investigation, namely, the theory that self-handicapping provides a buffer against threats to self-esteem or self-image (Berglas & Jones, 1978; Rhodewalt et al.,

1991). Certainly, however, on the basis of this one experiment we are not ready to conclude against the idea that self-handicapping acts as a buffer.

The second explanation centers on the notion that problems with the method did not enable an effective test of the hypotheses, whether or not the results do reflect on the truth about self-handicapping as a potential buffer. In the next few paragraphs, possible problems with the method are examined. For instance, was situational self-handicapping as operationally defined in this study reflective of self-handicapping as conceptualized in the literature? It does appear that the operationalization of self-handicapping in this study reflects the literature's conceptualization of self-handicapping. This operationalization of self-handicapping as choice of distracting or enhancing music has been previously used in other studies with significant results. For example, it has been used in studies by Drexler et al. (1995), Rhodewalt et al. (1991), and Tice (1991), although in the latter two studies the handicap was experimentally imposed on participants.

Also, could there be any problems associated with the sample in this study? All participants were female university students. It may be that the participants in this sample were familiar with taking tests and having their performance assessed, so they did not sufficiently feel the intended threat to motivate self-handicapping. However, university students are commonly sampled in psychology studies and have been studied successfully in many self-handicapping studies. In addition, females in this study did choose to self-handicap. Of the 105 participants, 34 chose to self-handicap by selecting the distracting music. In fact, 16 participants chose the most distracting music. This occurred despite evidence that there are sex differences associated with self-handicapping (e.g., Rhodewalt, 1990). This evidence suggests

that there are differences between males and females according to type of self-handicap, behavioral or self-report, that are preferred (Berglas & Jones, 1978; Rhodewalt, 1990). Generally, research has found that females tend not to behaviorally self-handicap. Females usually prefer self-report handicaps over behavioral handicaps. Contrary to this earlier research, there was evidence of females choosing to behaviorally self-handicap in this particular case.

Another methodological consideration is whether there were any problems with control of participant characteristics. There was no random assignment in this study; participants themselves chose whether or not to self-handicap. Thus, this was a quasi-experiment. Could there have been any differences between the self-handicappers and non self-handicappers in variables that might have undermined support of the hypotheses? There were no differences between the two groups on the pre-test measures of affect, self-esteem and tendency to self-handicap. However, it is possible that there were unexamined differences between the two groups in variables that might have undermined support for the hypotheses. There may have been differences in task motivation, levels of frustration, importance of task, etc between self-handicappers and non-self-handicappers.

Another possible concern lies with the reliability and validity of the measures used to assess the pre-test variables and dependent variables. However, the majority of the measures have been used successfully in previous research. All measures have good face validity and satisfactory internal consistency reliability, including the two measures that were modified for this study, the self-efficacy measure and the performance attribution measure. The measures also tended to intercorrelate in expected ways, which is indicative of construct validity.

The main unexpected correlation among the various measures was the non-significant correlation between trait self-handicapping and situational self-handicapping. A study by Ryska, Yin and Cooley (1998) also revealed a non-significant correlation between trait self-handicapping and situational self-handicapping (operationalized as degree of claimed performance anxiety). The researchers interpreted this finding as suggesting that the self-handicap of claimed performance anxiety does not provide a buffering effect among high trait self-handicappers. One explanation for the low correlation between situational self-handicapping and trait self-handicapping arises from comments by participants who chose the distracting music. Six of the participants who chose to self-handicap stated that they did so to determine how well they could perform despite the distracting effects of the music. That is, they purposely chose distracting music, not to provide an excuse for failure, but instead as a challenge to be overcome.

It is also possible that the low correlation in the present study between situational self-handicapping and trait self-handicapping was found because the trait self-handicapping measure, the Self-Handicapping Scale, is a global scale and may not necessarily be a good predictor of a specific behavior. The Self-Handicapping Scale measures a person's overall preferences to engage in self-handicapping behavior (Rhodewalt, 1990). There is evidence in the area of attitude research that measures of attitudes are not necessarily good predictors of specific behaviors (see Ajzen & Fishbein, 1977 and Cooper & Croyle, 1984 for reviews). Some personality psychologists also believe that personality traits also fail to predict behavior (Myers, 1993). Thus, it is possible that the trait self-handicapping scale as a measure of a global personality trait may not be a good predictor of when a participant will select a specific

behavioral self-handicap. It may be that the specific behavioral handicap in this study did not appeal to the participants who scored high on the Self-Handicapping Scale. Participants high on the Self-Handicapping Scale may prefer other types of self-handicaps, namely, self-report self-handicaps or other operationalizations of behavioral handicaps.

A further consideration in the study was whether the failure feedback manipulation was effective in the sense that participants attended to and properly interpreted the performance feedback. Both participant comments and the manipulation check suggested that participants interpreted the feedback as intended. Most participants expressed disappointment and embarrassment upon learning of their low performance. None of the participants reported any suspicion in the debriefing session. Several expressed surprise and relief upon learning that the feedback had been manipulated. Many participants stated that the two graphs illustrating their performance in relation to the other participants were very convincing. The failure feedback was also supported by the results of the manipulation check. The manipulation check required participants to complete one set of questions if they thought they had done well on the spatial relations test and another set of questions if they thought they had done poorly on the test. All participants completed the latter set of questions.

A final concern in the study was whether there were any demand characteristics that might have served as confounding variables. Participants were told a cover story which stated that the test they were to be given had been used by researchers from universities in Canada to predict success in university. Was this cover story credible? Participants appeared to accept the cover story without question and many expressed disappointment that they had not performed better on the test because the test predicts university success. When participants

were asked what they thought the purpose of the study was, many stated that the purpose was to compare their test performance with other students across Canada.

Participants also seemed to believe that the music on the cassettes would have the intended effect on performance. In the debriefing, all participants stated that the cassettes labeled with red dots would hurt their test performance and that the cassettes labeled with green dots would improve their performance. As stated previously, the failure feedback was also interpreted as intended. No participants reported suspicion in the debriefing regarding any aspect of the study.

#### *Suggestions for Future Research*

A major difference between this study and Drexler et al.'s (1995) study, on the one hand, and the majority of other studies, on the other hand, concerns the types of handicaps examined. Most studies have either used experimentally imposed handicaps (e.g., Rhodewalt et al., 1991, ) or classified participants based on their scores on the SHS (e.g., Feick & Rhodewalt, 1997; Sanna & Mark, 1995). That is, in these studies participants were randomly assigned to either a handicap present or a handicap absent group, or they were assigned to a condition based on their scores on the Self-Handicapping Scale. In this study, self-selected handicaps were used. Participants chose whether to self-handicap or not before evaluation by selecting performance facilitating or performance distracting music. It may be that self-selected handicaps have different emotional and psychological consequences than experimentally imposed handicaps. It may be that knowing that a person has purposefully hurt her own performance has effects that were not examined in this study or were obscured by another, unexamined factor, such as fear of failure or other personality characteristics. More

research is needed on the consequences of self-selected self-handicaps to determine if this may be the case.

In this study, participants were told a cover story which included the statement that the spatial relations test had been found to predict university success. The purpose of this cover story was to allow the researchers to induce a threat to self-esteem or self-image which was then expected to motivate self-handicapping behavior. Perhaps the bogus feedback procedure did not sufficiently threaten the participant's sense of self-esteem or self-image. This possibility is supported by some participant comments that their low performance did not bother them because their score on this test would not affect their university course grades. As well, recall that Drexler et al.'s (1995) study, using the same operationalization of self-handicapping, also did not find significant results for negative affect. Thus, it may be that a self-handicap that has more severe personal life consequences, such as neglecting to study before a university exam or deciding to drink before a critical evaluation, would be more likely to induce buffering effects. A task that is also more critical to a person's self-esteem or self-concept may also provide stronger results. A future study should include a measure of the importance of the task to the participant.

It is possible that some participants self-handicapped in other ways by minimizing the importance of the spatial relations test or by not trying their best during the test. It is also possible that participants who did self-handicap did not feel committed enough to that choice for their scores on the dependent measures to reflect the handicap. A future study should examine these factors to determine if they effect self-handicapping behavior.

In conclusion, there was no effect of situational self-handicapping on positive affect,

negative affect, test performance, self-efficacy and performance attributions. An analysis of the study examined whether the lack of significant findings may have been due to possible methodological problems in the study. Further studies should examine other factors that may have affected the results, such as importance of the task to the participant, desirability of the particular self-handicap for the participant, and whether experimentally imposed or self-selected self-handicaps have different emotional, cognitive and psychological consequences.

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Appendix A

Distractor Scales of Academic Background and Musical Background

Academic Background

1. What is your current year of university? Please circle your response.

1      2      3      4      5 and up

2. What is your current G.P.A.? Please give your best estimate. \_\_\_\_\_

3. What was your high school G.P.A.? Please give your best estimate. \_\_\_\_\_

4. What is your major at the University of Windsor?

\_\_\_\_\_

Musical Background

1. What type(s) of music do you usually listen to?

\_\_\_\_\_

2. How many hours per week do you typically spend listening to music? Please estimate.

\_\_\_\_\_

3. Do you listen to classical music regularly? Please circle your response.

Yes                  No

4. Can you read sheet music? Please circle your response.

Yes      Somewhat      No

5. Do you play any instrument(s)? Please circle your response.

Yes                  No

If so, which instrument(s) do you play?

---

---

6. Please place a check next to any of the following pieces of musical equipment that you own:

\_\_\_\_\_ turntable

\_\_\_\_\_ speakers

\_\_\_\_\_ cassette deck

\_\_\_\_\_ equalizer

\_\_\_\_\_ cd player

\_\_\_\_\_ amplifier

## Appendix B

## Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

<input type="checkbox"/> interested	<input type="checkbox"/> irritable
<input type="checkbox"/> distressed	<input type="checkbox"/> alert
<input type="checkbox"/> excited	<input type="checkbox"/> ashamed
<input type="checkbox"/> upset	<input type="checkbox"/> inspired
<input type="checkbox"/> strong	<input type="checkbox"/> nervous
<input type="checkbox"/> guilty	<input type="checkbox"/> determined
<input type="checkbox"/> scared	<input type="checkbox"/> attentive
<input type="checkbox"/> hostile	<input type="checkbox"/> jittery
<input type="checkbox"/> enthusiastic	<input type="checkbox"/> active
<input type="checkbox"/> proud	<input type="checkbox"/> afraid

*Note.* From “Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales,” by D. Watson, L. A. Clark, and A. Tellegen, 1988, *Journal of Personality and Social Psychology*, 54, p.1070. Copyright 1988 by the American Psychological Association, Inc.

Appendix C

Rosenberg Self-Esteem Inventory

1. I feel I am a person of worth, at least on an equal plane with others.

- Strongly Agree
- Agree
- Disagree\*
- Strongly Disagree\*

2. I feel I have a number of good qualities.

- Strongly Agree
- Agree
- Disagree\*
- Strongly Disagree\*

3. All in all, I am inclined to think I am a failure.

- Strongly Agree\*
- Agree\*
- Disagree
- Strongly Disagree

4. I am able to do things as well as most other people.

- Strongly Agree
- Agree
- Disagree\*
- Strongly Disagree\*

5. I feel I do not have much to be proud of.

- Strongly Agree\*
- Agree\*
- Disagree
- Strongly Disagree

6. I take a positive attitude toward myself.

- Strongly Agree
- Agree
- Disagree\*
- Strongly Disagree\*

7. On the whole, I am satisfied with myself.

- Strongly Agree
- Agree
- Disagree\*
- Strongly Disagree\*

8. I wish I had more respect for myself.

- Strongly Agree\*
- Agree\*
- Disagree
- Strongly Disagree

9. I certainly feel useless at times.

- Strongly Agree\*
- Agree\*
- Disagree
- Strongly Disagree

10. At times I think I am no good at all.

- Strongly Agree\*
- Agree\*
- Disagree
- Strongly Disagree

*Note.* The \* indicates items that are reverse scored. From *Society and the Adolescent Self-Image*, by M. Rosenberg, 1965, p. 305. New Jersey: Princeton University Press. Copyright 1965 Princeton University Press.

## Appendix D

## Self-Handicapping Scale

Please indicate (by writing a number in the blank before each item) the degree to which you agree with each of the following statements as a description of the kind of person you think you are most of the time. Use the following scale to respond to all the items:

- 0 = disagree very much  
 1 = disagree pretty much  
 2 = disagree a little  
 3 = agree a little  
 4 = agree pretty much  
 5 = agree very much

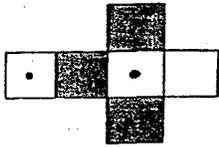
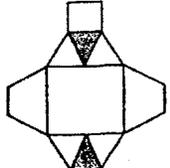
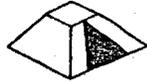
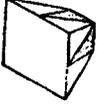
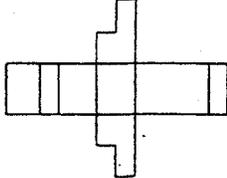
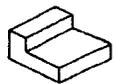
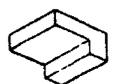
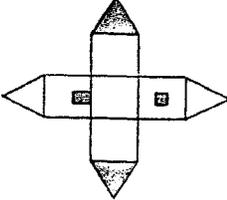
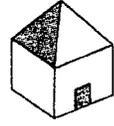
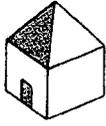
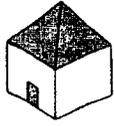
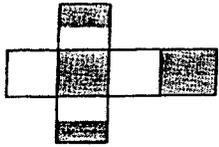
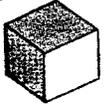
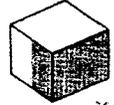
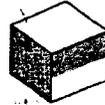
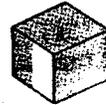
- \_\_\_\_\_ 1. When I do something wrong, my first impulse is to blame the circumstances.  
 \_\_\_\_\_ 2. I tend to put things off to the last moment.  
 \_\_\_\_\_ 3. I tend to overprepare when I have any kind of exam or "performance."\*  
 \_\_\_\_\_ 4. I suppose I feel "under the weather" more often than most people.  
 \_\_\_\_\_ 5. I always try to do my best, no matter what.\*  
 \_\_\_\_\_ 6. Before I sign up for a course or engage in any important activity, I make sure I have the proper preparation or background.\*  
 \_\_\_\_\_ 7. I tend to get very anxious before an exam or "performance."  
 \_\_\_\_\_ 8. I am easily distracted by noises or my own creative thoughts when I try to read.  
 \_\_\_\_\_ 9. I try not to get too intensely involved in competitive activities so it won't hurt too much if I lose or do poorly.  
 \_\_\_\_\_ 10. I would rather be respected for doing my best than admired for my potential.\*  
 \_\_\_\_\_ 11. I would do a lot better if I tried harder.  
 \_\_\_\_\_ 12. I prefer the small pleasures in the present to the larger pleasures in the dim future.  
 \_\_\_\_\_ 13. I generally hate to be in any condition but "at my best."\*\*  
 \_\_\_\_\_ 14. Someday I might "get it all together."  
 \_\_\_\_\_ 15. I sometimes enjoy being mildly ill for a day or two because it takes off the pressure.  
 \_\_\_\_\_ 16. I would do much better if I did not let my emotions get in the way.  
 \_\_\_\_\_ 17. When I do poorly at one kind of thing, I often console myself by remembering I am good at other things.  
 \_\_\_\_\_ 18. I admit that I am tempted to rationalize when I don't live up to others' expectations.  
 \_\_\_\_\_ 19. I often think I have more than my share of bad luck in sports, card games, and other measures of talent.  
 \_\_\_\_\_ 20. I would rather not take any drug that interfered with my ability to think clearly and do the right thing.\*  
 \_\_\_\_\_ 21. I overindulge in food and drink more often than I should.  
 \_\_\_\_\_ 22. When something important is coming up, like an exam or a job interview, I try to get as much sleep as possible the night before.\*

- \_\_\_\_\_ 23. I never let emotional problems in one part of my life interfere with things in my life.\*
- \_\_\_\_\_ 24. Usually, when I get anxious about doing well, I end up doing better.
- \_\_\_\_\_ 25. Sometimes I get so depressed that even easy tasks become difficult.

*Note.* \* Indicates the item is reverse scored. From "Self-Handicappers: Individual Differences in the Preference for Anticipatory, Self-Protective Acts," by F. Rhodewalt, 1990. In R. L. Higgins, C. R. Snyder, and S. Berglas (Eds.). *Self-Handicapping: The Paradox That Isn't*, New York: Plenum Press.

Appendix E

Diagnostic and Spatial Relations Aptitude Preliminary Test

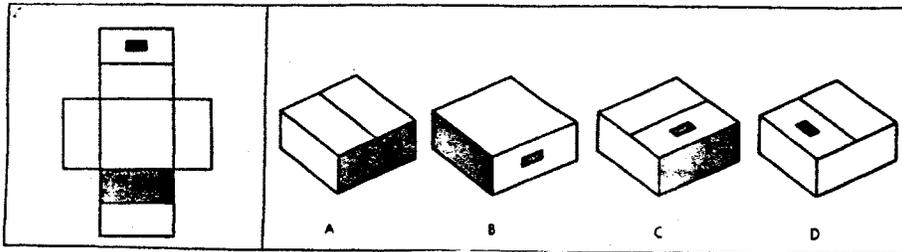
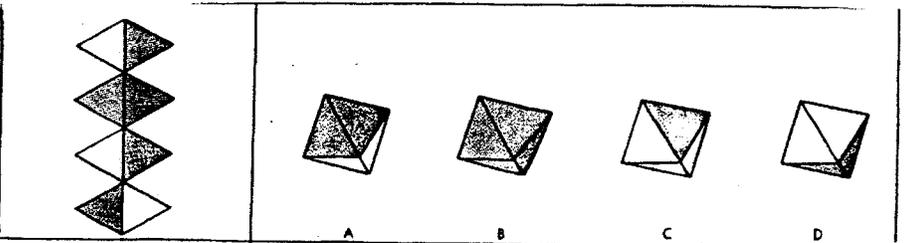
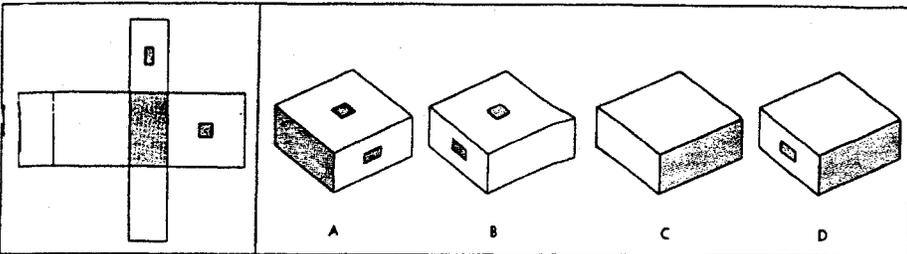
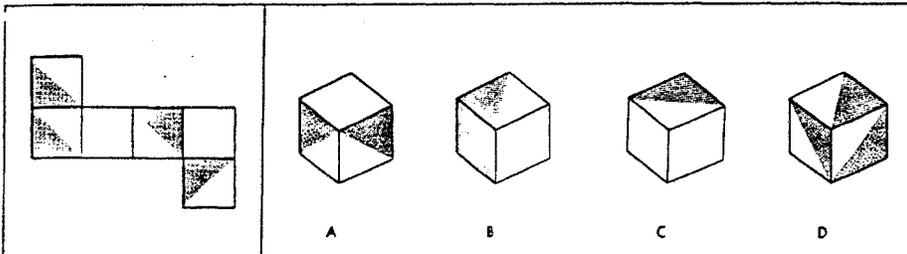
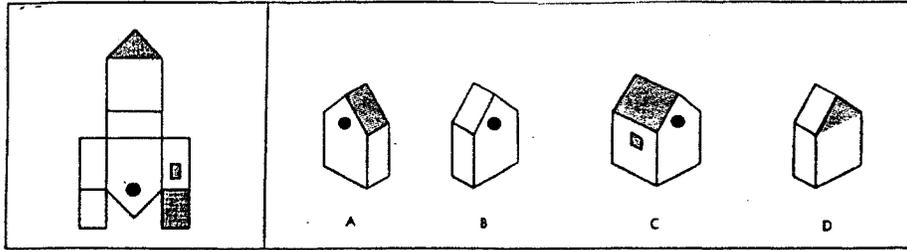
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	 A	 B	 C	 D
	 A	 B	 C	 D

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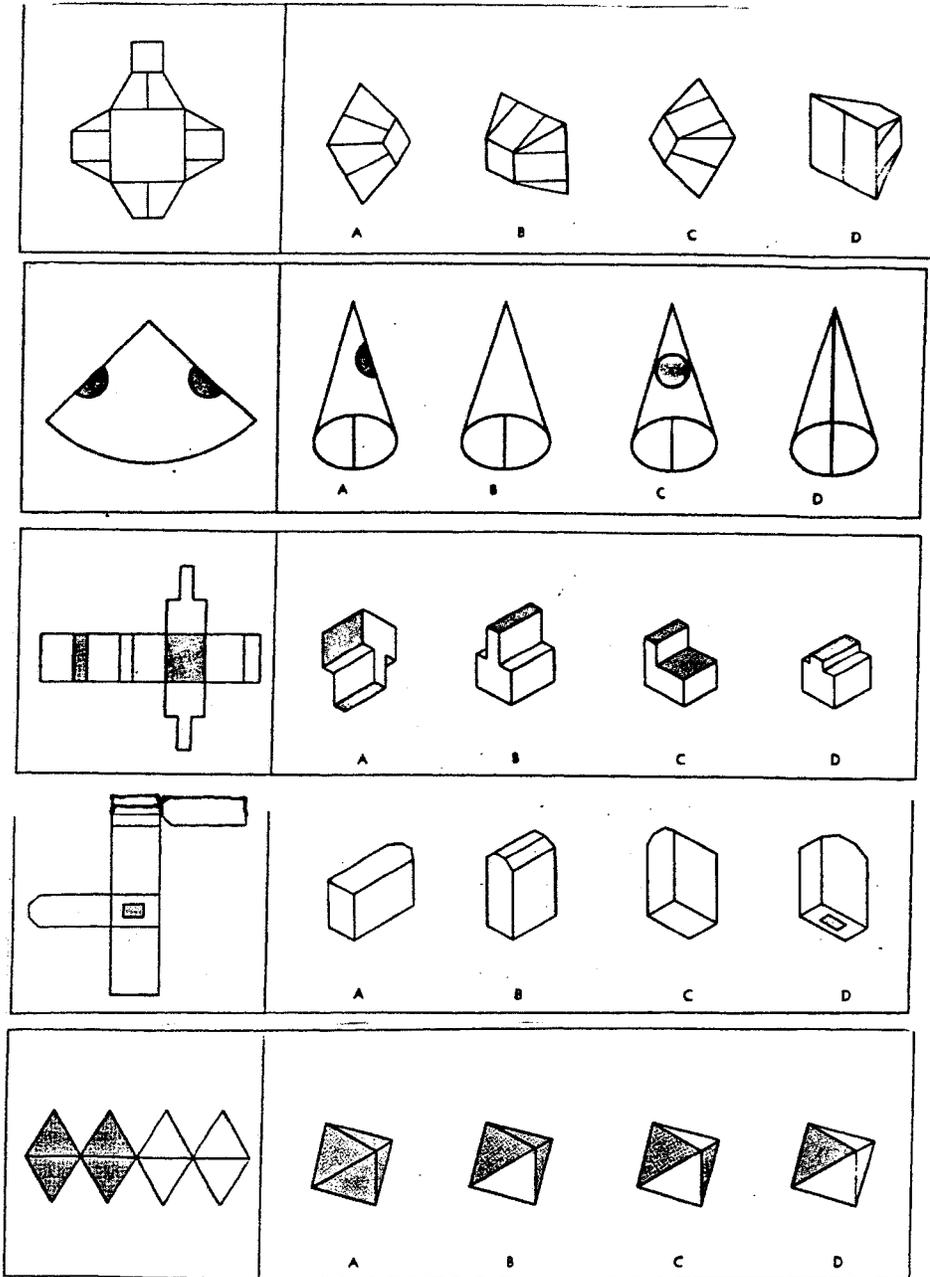
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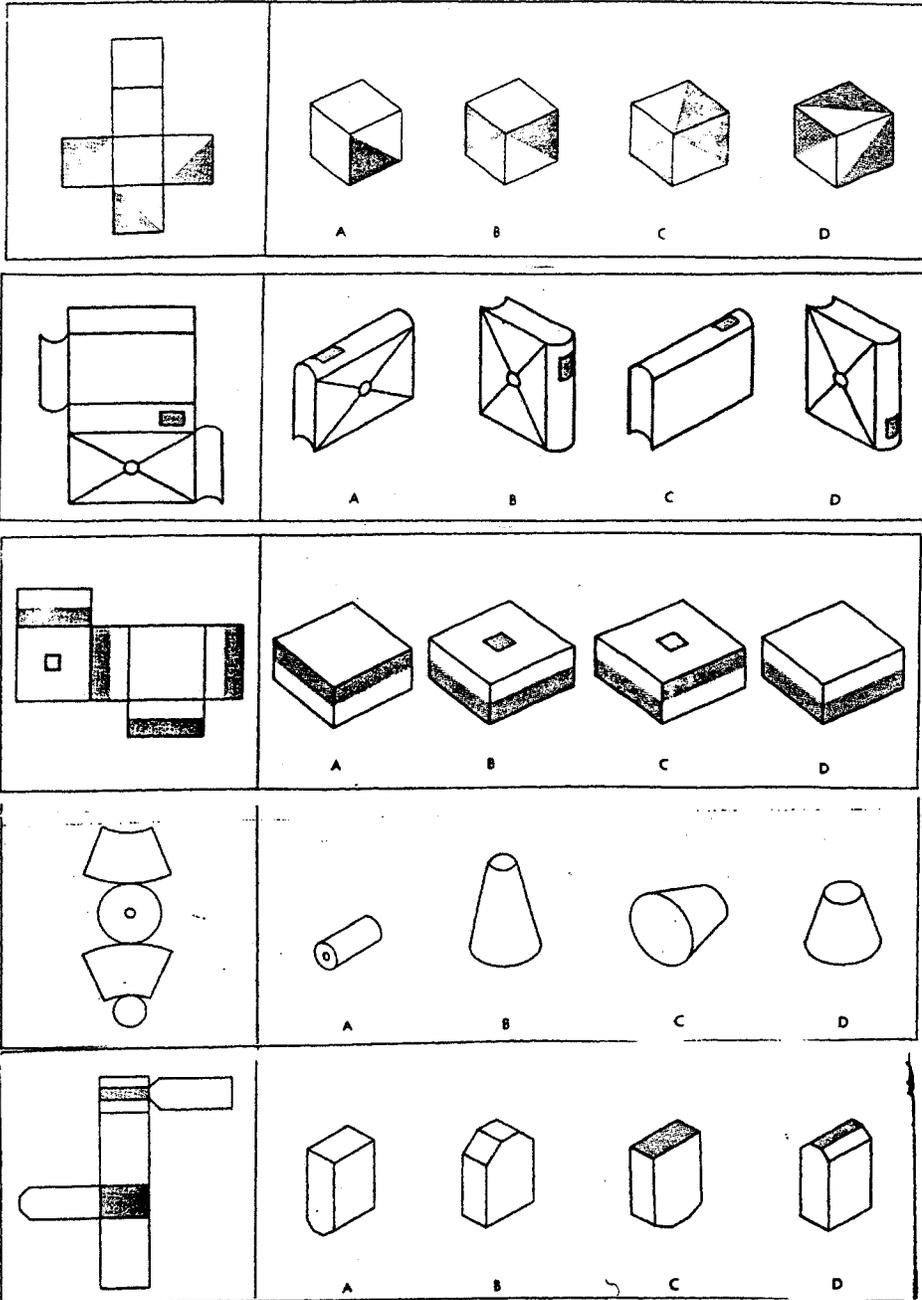


Diagnostic and Spatial Relations Aptitude Test

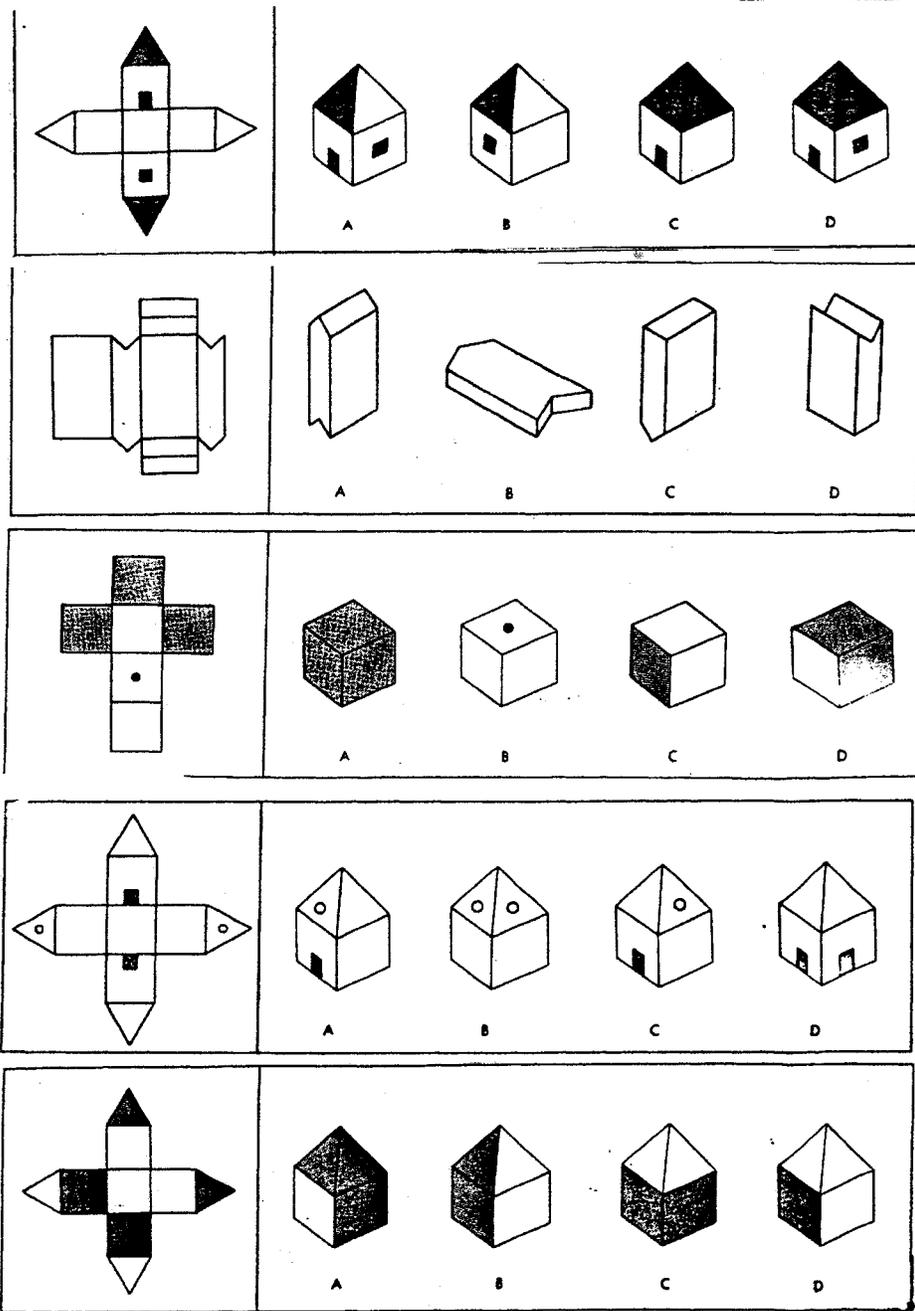

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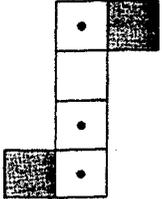
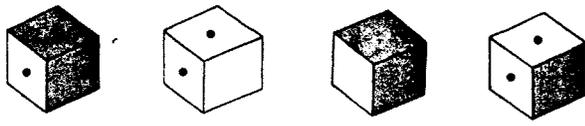
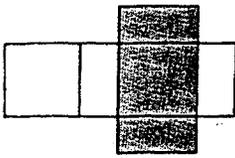
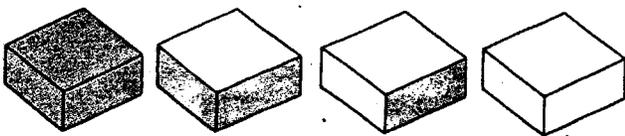
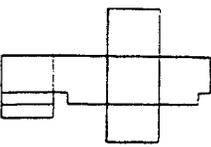
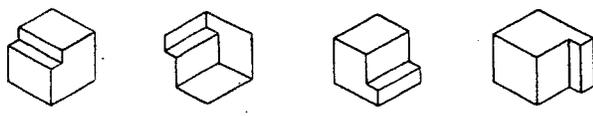
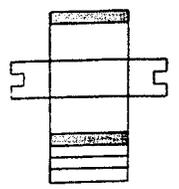
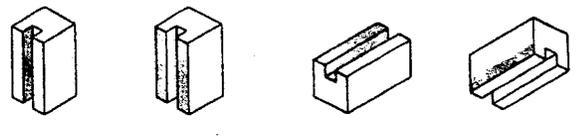
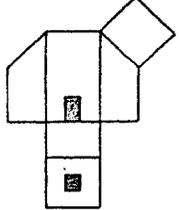
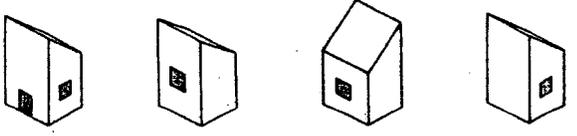


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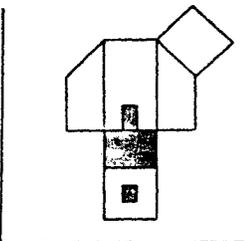
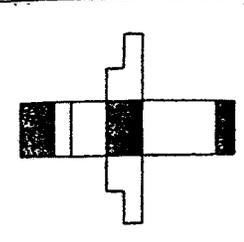
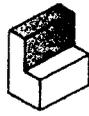
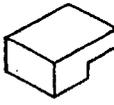
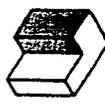
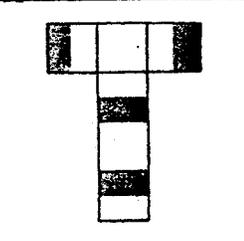
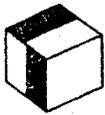
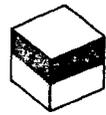
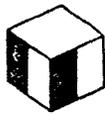
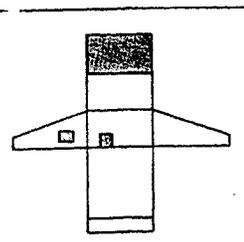
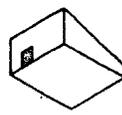
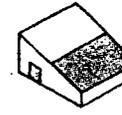
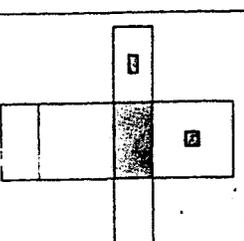
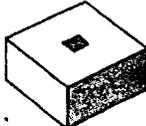
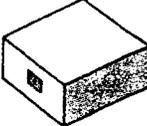
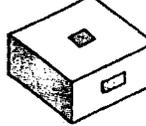
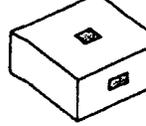


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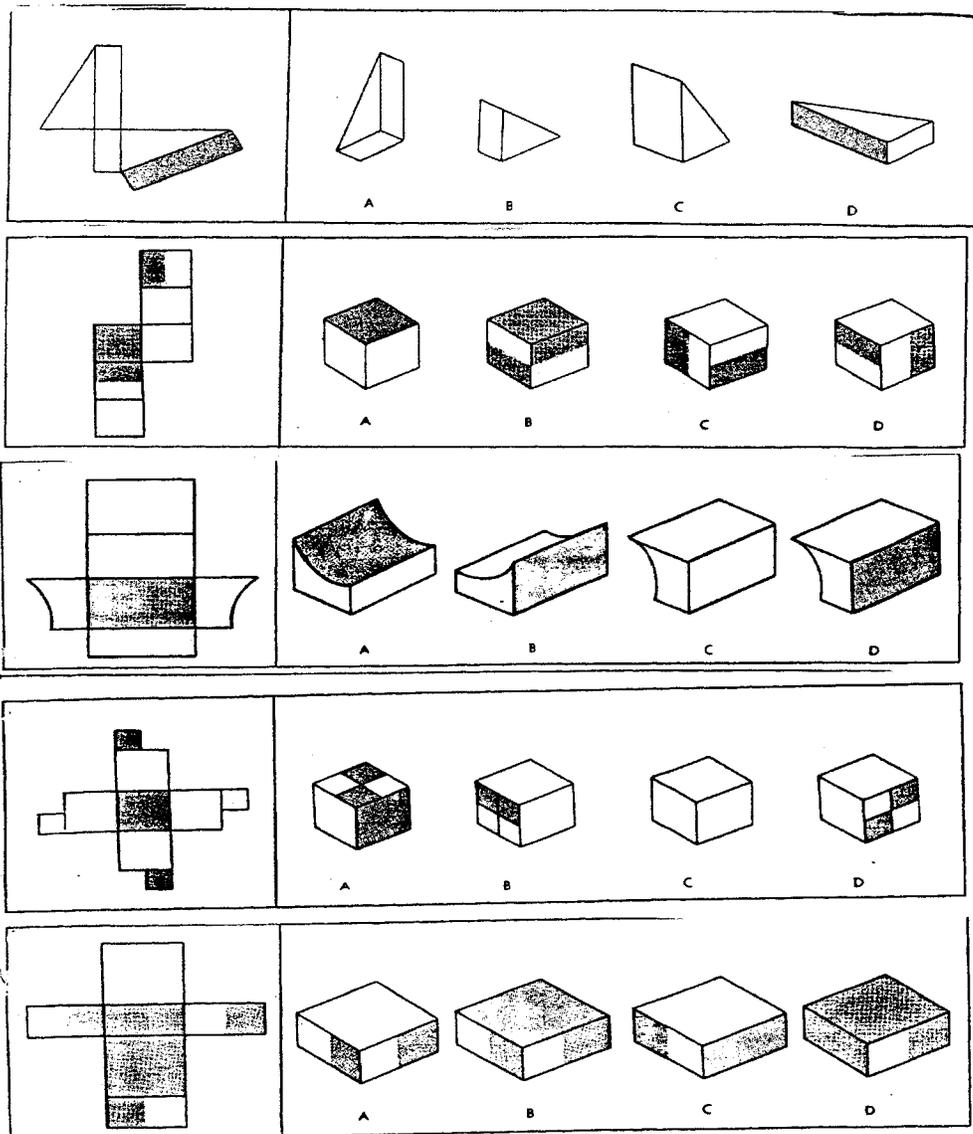

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	 <p>A B C D</p>
	 <p>A B C D</p>
	 <p>A B C D</p>
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	 A	 B	 C	 D
	 A	 B	 C	 D
	 A	 B	 C	 D
	 A	 B	 C	 D
	 A	 B	 C	 D

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*Note.* From *Differential Aptitude Tests Form T*, by G. K. Bennett, H. G. Seashore, and A.G. Wesman, 1972, New York: Psychological Corporation.

## Appendix F

## Performance Attribution Measure

There are two different sections below, Section A **and** Section B. Respond to **only** the questions in Section A if you did well on the test. Respond to **only** the questions in Section B if you did not do well on the test. In each section, please indicate to what extent you feel that each of the statements applies to you personally by placing the appropriate number from the scale on the blank next to each statement.

Section A.

Answer these questions only if you did well on the test. Please use the scale provided.

1	2	3	4	5
Disagree very much	Disagree a little	Undecided	Agree a little	Agree very much

- \_\_\_\_\_ 1. My high performance on the test was due to high ability.
- \_\_\_\_\_ 2. My high performance on the test was due to the fact that the music helped my performance.
- \_\_\_\_\_ 3. My high performance on the test was due to the fact that the practice helped my performance.
- \_\_\_\_\_ 4. My high performance on the test was due to the fact that I was lucky.
- \_\_\_\_\_ 5. My high performance on the test was due to the fact that the test was easy.

**Section B**

Answer these questions only if you did not do well on the test. Please use the scale provided.

1	2	3	4	5
Disagree very much	Disagree a little	Undecided	Agree a little	Agree very much

- \_\_\_\_\_ 1. My low performance on the test was due to low ability.
- \_\_\_\_\_ 2. My low performance on the test was due to the fact that the music was distracting.
- \_\_\_\_\_ 3. My low performance on the test was due to the fact that I didn't practice enough.
- \_\_\_\_\_ 4. My low performance on the test was due to the fact that I was unlucky.
- \_\_\_\_\_ 5. My low performance on the test was due to the difficulty of the test.

*Note.* The four items that were dropped were as follows:

- Compared with others in this class, I think I'm a good student.
- My study skills are excellent compared with others in this class.
- Compared with other students in this class, I think I know a great deal about the subject.
- I know that I will be able to learn the material for this class.

*Note.* Adapted from "Motivational and Self-Regulated Learning Components of Classroom Academic Performance," by P.R. Pintrich and E. V. De Groot, 1990, *Journal of Educational Psychology*, 82, p. 40. Copyright 1990 by American Psychological Association, Inc.

## Appendix G

## Self-Efficacy Measure

Please indicate to what extent you feel each of the statements applies to you personally if you were to take this test again. Please indicate your responses by placing the appropriate number from the scale on the lines below.

1	2	3	4	5
not at all true of me	somewhat untrue of me	undecided	somewhat true of me	very true of me

- \_\_\_\_\_ 1. Compared with other students completing this test, I would expect to do well.
- \_\_\_\_\_ 2. I'm certain I would understand the problems presented in this test.
- \_\_\_\_\_ 3. I expect I would do very well on this test.
- \_\_\_\_\_ 4. I am sure I would do an excellent job on the problems assigned in this test.
- \_\_\_\_\_ 5. My performance on the test would be improved compared to last time.

## Appendix H

## Informed Consent Form

The general purpose of this study is to examine the effect of music on performance. The study is being conducted by a graduate student, Kelly Powell, as her Masters thesis, under the supervision of Dr. Frank Schneider. If you consent to participate, you will be asked to complete a few questionnaires and work on an ability test. The study will take about 45 - 50 minutes.

Your responses will be recorded anonymously. That is, you are not requested to indicate your name or student I.D. number on any materials; thus they will not be attached to any information you provide. Moreover, all information will be treated with strict confidentiality. If at any time you have questions or concerns about the task or study, please do not hesitate to speak with the researcher. You are free to discontinue participation at any time without penalty.

This research has been approved by the University of Ethics Committee. If you have complaints about the research, you may contact Dr. Stewart Page, Chair of the Psychology Department's Ethics Committee (253-3000, ext. 2243). After you have participated in the study, the researcher will discuss it further with you. Also, if you have additional questions, please feel free to contact the thesis supervisor, Dr. Frank Schneider (253-3000, ext. 2226).

Please sign the Consent Form at the bottom of this page, detach it, and give it to the researcher. You may keep the top (above) portion for you records.

---

 Consent Form

I have read the above Informed Consent information regarding the study about the effect of music on spatial performance. I understand the information provided and give my consent to participate with my signature below. My signature also acknowledges that I have been given a copy of the Informed Consent information.

---

 Name of participant

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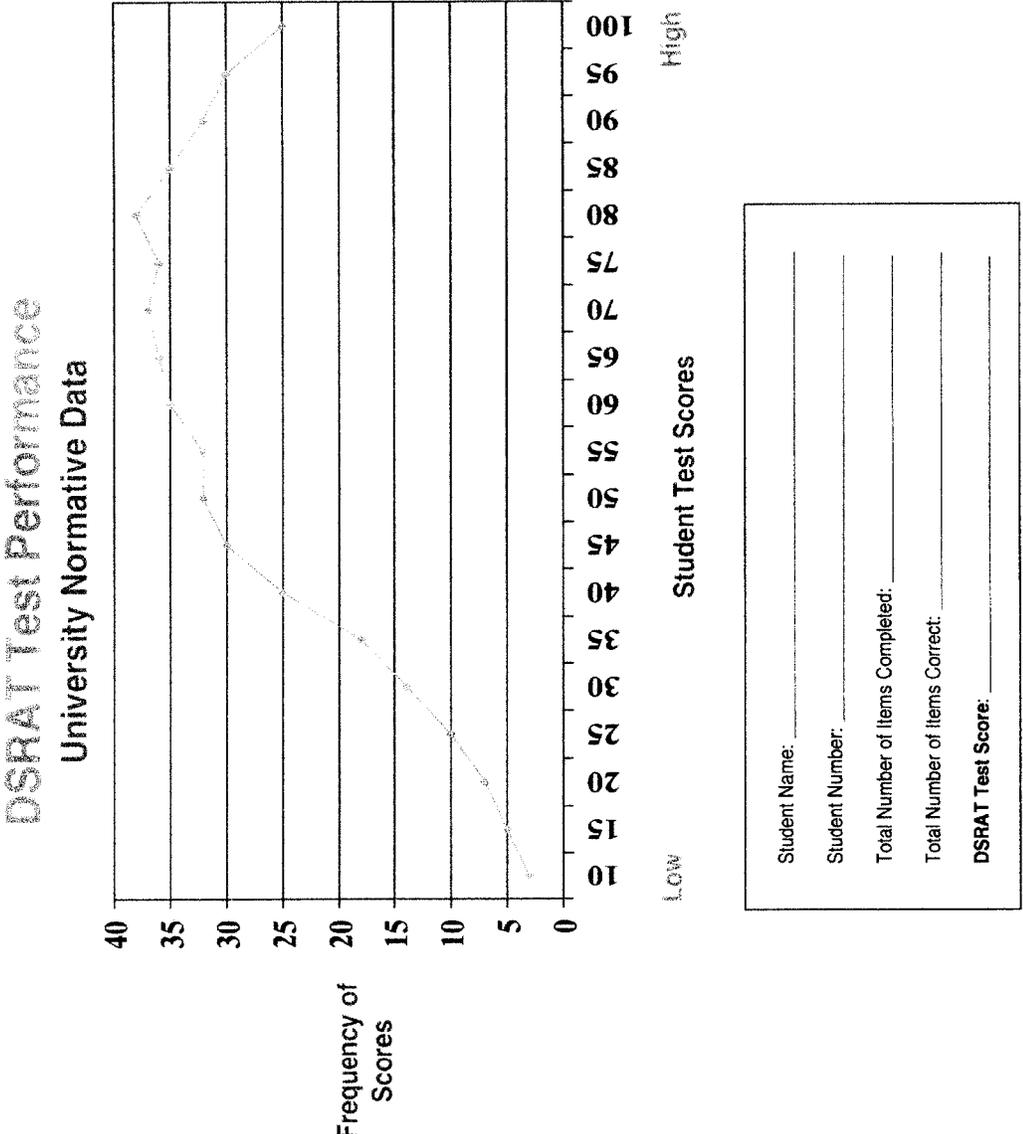
 Signature

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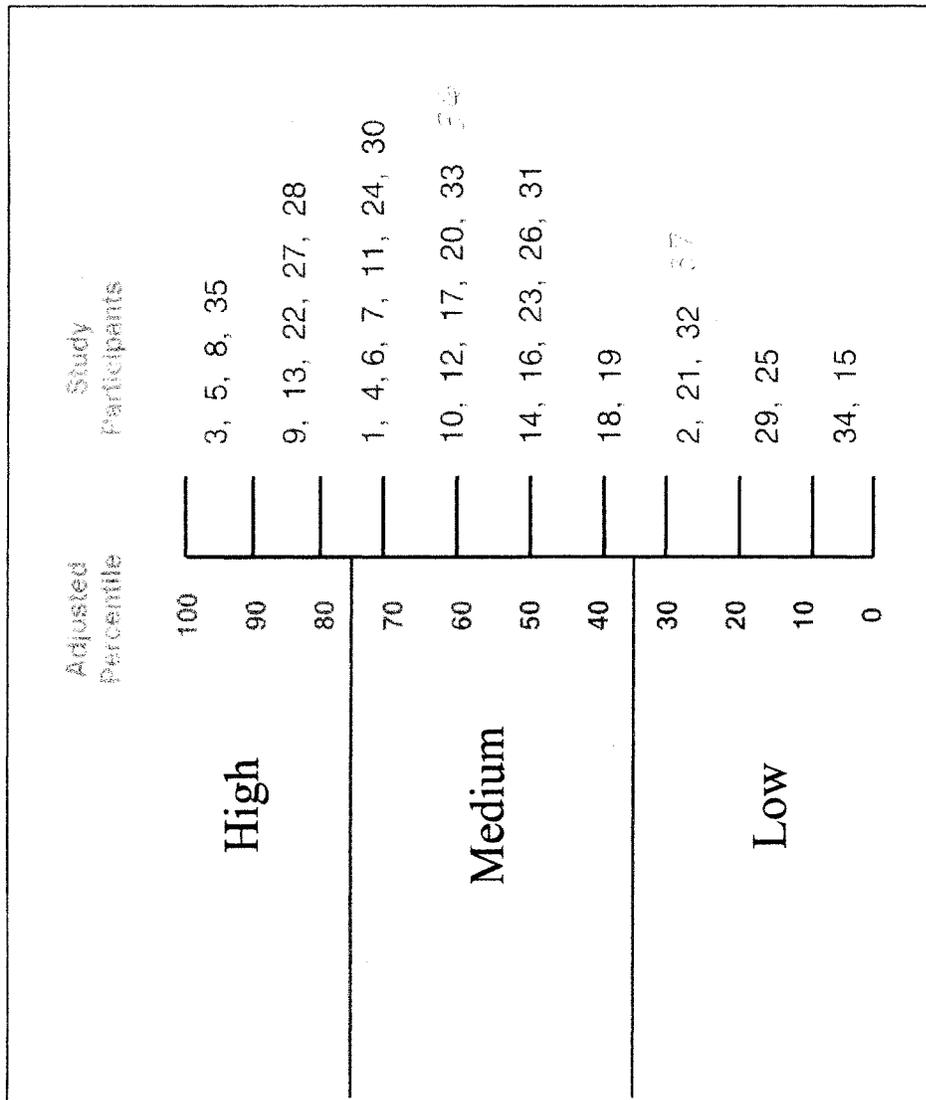
 Date

Appendix I

Performance Feedback Graphs



DSHAT Test Profile **Participant No.** 37  
**Study Results** **Percentile Rank** 30<sup>th</sup>





Performance Attributions

	Lack of Ability	Distracting Music	Lack of Practice	Unlucky	Difficult Test	Self-Esteem	Trait Self-Handicapping
Situational Self-Handicapping	.03	.02	.14	-.10	-.12	-.04	-.03
Pre Positive Affect	.003	.09	.12	.07	.15	.27**	-.01
Pre Negative Affect	-.07	.00	-.01	.04	.00	-.29**	.34**
Number of Items Completed on Pre-Test	-.16	.29**	.16	.19	-.02	.17	.03
Pre-Test Score	-.27**	.13	-.12	-.09	-.22*	.09	.02
Number of Items Completed on DSRAT	-.28**	.26**	.08	.28**	-.08	.15	-.07
DSRAT Score	-.41**	.11	-.08	-.05	-.17	.10	-.03
Post Positive Affect	.03	-.11	-.19	.09	.26**	.38**	-.12
Post Negative Affect	.03	.10	.12	.03	-.03	-.20*	.25*
Self-Efficacy	-.45**	.19*	.06	.11	-.15	.29**	-.24*
Lack Ability	1.00	-.20*	.06	-.03	.39**	-.10	-.10
Distracting Music	1.00	1.00	.21*	.07	-.07	.10	-.14
Lack of Practice			1.00	.21*	.14	.03	-.11
Unlucky			1.00	1.00	.12	-.02	-.02
Difficult test				1.00	1.00	.09	.10
Self-Esteem						1.00	-.50**
Trait Self-Handicapping							1.00

\* significant at .05 level; \*\* significant at .01 level.

Vita Auctoris

Kelly Powell was born in 1976 in Labrador City, Newfoundland and Labrador. She graduated from Pasadena Academy High School in 1998. From there she went on to Memorial University of Newfoundland where she obtained a Honors B.A. in Psychology in 1999. She is currently a candidate for the Master's degree in Applied Social Psychology at the University of Windsor and hopes to graduate in June 2003.