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Emotion Altering Effects of Research Participation.

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Except where due reference is made in the text,
this paper represents my own, unaided work.

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Supervisor: Dr. Paul Chang

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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Abstract

Previous studies have suggested that participating in psychological research may temporarily amplify participants' experience of positive or negative emotions (Daugherty & Lawrence, 1996). In the present research, 114 male and female university students completed either self-focused or non-self-focused questionnaires to investigate characteristics that may predispose some participants to positive or negative reactions following participation in research. Four hypotheses were examined: (a) A self-focused task compared to a non-self-focused task would significantly increase average levels of emotional arousal; (b) the amplification of emotional reactions would be greater in females than males; (c) participants experiencing negative life events and who are less well adjusted would experience a negative emotional reaction to participation; and (d) participants experiencing positive life events and who are well adjusted would experience a positive emotional reaction to participation. Results suggest no difference between self-focused and non-self-focused tasks in their ability to effect emotions during research participation. Findings also indicate that males' emotional reaction was significantly more elevated than females after participation. Personality traits rather than life experiences were also identified as better predictors of emotional reactions to participation. These results bring into question conclusions drawn by previous research about sex-differences and self-focused attention and suggest that completion of self-report questionnaires have few aversive affects.

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Emotion Altering Effects of Research Participation

Student participation in research is extremely important to psychological science. Thousands of undergraduate students are the source of psychological research data each year (Daugherty & Lawrence, 1996). For example, Jung (1969) investigated 60 major universities and found that 90% of their behavioural science data were collected from student participants. Similarly, it has been reported that 74% of the articles published in the *Journal of Personality and Social Psychology* used student participants (Sieber & Saks, 1989). Sieber and Saks questioned this heavy reliance on student participants and suggested that psychology faces a dilemma: In an effort to advance psychological knowledge, are students being used, misused, or treated unethically?

In the past, there is no doubt that some research involving student participants has pushed ethical boundaries. For example, in the early 1970s several studies within the social and behavioural sciences became the topic of vigorous debate and close ethical scrutiny because of their questionable use of human participants (e.g., Milgram, 1974; Zimbardo, Havey, Banks, & Jaffe, 1973). Grisso et al. (1991) commented that prior to the 1960s, researchers faced “few regulatory restraints or effective guidelines concerning such matters as informed consent, deception of research participants, and confidentiality in research endeavors” (p. 758). During the 1960s and early 1970s, however, increasing concern was raised about some researchers’ ethical standards (Faden & Beauchamp, 1986). For example, a court decision made in 1957 in the United

States (*Salgo v. Leland Stanford Jr. University Board of Trustees*, cited in Grisso et al., 1991) provided the first use of the term “informed consent”, and a series of court cases prior to 1972 shaped the legal definition of informed consent as it is used in psychology today (Grisso et al., 1991). A great deal of public attention was drawn to these court cases and hence the potential for abuse of human participants. Not surprisingly, concern in the general public grew about the reliance on an individual researcher’s conscience as a guide for protecting their participants in scientific research (Faden & Beauchamp, 1986). Due to this increasing concern within both medical and non-medical research, many organisations reacted by providing clear guidelines for ethical conduct in human research. For example, the American Psychological Association (APA) formed a committee on ethical standards in psychological research which produced the Association’s “Ethical Principles in the Conduct of Research with Human Participants” (APA, 1973) that has served as the profession’s guideline.

Since the early 1970’s, attention has increasingly focused on the ethical treatment of research participants (Stanley, Sieber, & Melton, 1987), especially student participants (Korn, 1988). However, some authors remain concerned about the treatment of student participants today, particularly by the institutions in place to protect them (Diamond & Reidpath, 1994; McCord, 1991; Sieber & Saks, 1989).

Although what we learn from research is important, little is known of the possible negative effects the research experience may have on the student

participant. Student participation in research can sometimes be valuable but it should not be at the expense of the student's needs and rights. Despite our stated concern for their welfare, often students' rights are not appropriately considered (Diamond & Reidpath, 1994). For example, it is considered essential that participants have freedom of choice in deciding whether or not to participate in psychological research. However, in a survey of psychology departments across Australia, Diamond and Reidpath (1992) found that 43% of institutions used measures, considered by some to be coercive, to force students to participate in research. These measures included inducements, penalties or the threat of an additional academic workload should the student decide not to participate.

Some researchers have reported that coercing participants may in fact lead to different results. For example, Holden and Reddon (1987) conducted research concerning personality variations among participants from a university subject pool. Those students required to participate showed differing personality characteristics compared to participants who volunteered. Lindsay and Holden (1987) found similar results in their study and concluded that investigators using university subject pools that force participation should be cautious as the differences in personality characteristics may represent possible confounds in research.

Coercing students to participate in research goes against both the National Health and Medical Research Council (NHMRC, 1988), and the Australian Psychological Society's (APS, 1986) "Code of Professional Conduct". In

addition, coercing students is in direct conflict with a tertiary institution's duty to protect research participants (Diamond & Reidpath, 1994). However, as Diamond and Reidpath explain, an argument is often made "in an attempt to justify unethical conduct... about the value to students of participating in research" (p. 145). The argument here is that participating in research is a valuable experience for undergraduate psychology students as it can be useful in promoting course goals (Daugherty & Lawrence, 1996). Furthermore, Hutchinson, Wilson and Wilson (1994) described catharsis, sense of purpose, self-awareness, self-acknowledgement, empowerment and healing as the sometimes-unanticipated benefits reported by research participants.

Despite the possible benefits of participating in research, Diamond and Reidpath (1992) have questioned its value to students and state that no studies have been conducted demonstrating the value of compulsory participation in research over other teaching methods. Diamond and Reidpath go further to comment that "most institutions make little effort to create a truly educational experience out of research participation, or to determine what, if anything, the students learned through their participation" (p. 145).

In addition to respecting an individual's right to decline to participate, another essential factor in conducting ethical research is the use of debriefing after participation. Among other reasons, the main purpose of debriefing is to remove any misconceptions and anxieties that the participants have about the research study (Blanck et al., 1992). Debriefing in this sense is an active effort to ensure

that participants do not leave the experiment feeling worse than when they entered. Therefore, “at the very least, participants should have no negative physical or emotional residues from their laboratory experiences” (Tesch, 1977, p. 218).

Various institutions employ guidelines that imply participants should feel better from the experience of participating in research. For example, the University Ethics Committee that approved the present research required descriptions of “the possible benefits of this research to the subject” and “to humanity in general” (ECU, 1997, p. 7). Moreover, the American Psychological Association stated participants should receive “an identifiable benefit” from their participation (APA, 1973, p. 11). Thus, debriefing participants should serve an educational function that benefits the participant as well as remove any negative reactions.

Tesch (1977) cautioned researchers of the importance of debriefing when he commented:

On the one hand, we devise marvelous manipulations and hone them for maximum impact upon our participants. On the other hand, we apparently assume that the effects produced conveniently cease when the participants leave our experiments (p. 219).

Echoing these sentiments, Daugherty and Lawrence (1996) stated that some students might experience negative emotional reactions to participating in psychological research. According to Daugherty and Lawrence, these negative

emotional reactions to participation in research are often caused by a lack of consideration of the costs and benefits for student participants. Among other factors, Daugherty and Lawrence argued that negative emotional reactions are caused by a participation-induced increase in *self-focused attention*.

The term self-focused attention was originally derived from Duval and Wicklund's (1972) theory of objective self-awareness, and refers to attention that is consciously directed towards the self. According to Duval and Wicklund, when an individual is self-aware, his or her attention tends to focus on whatever dimensions of the self happens to be most salient at the time. For example, if one person is angry with another, he or she is more likely to act out against that person if their attention is self-focused at the time (Scheier, 1976). Moreover, Gibbons et al. (1985) argued that a person who is chronically depressed and experiencing negative affect should increase their negative emotions when their attention is directed internally.

Duval and Wicklund's theory was further refined and elaborated by Hull and Levy (1979), Buss (1980), and Carver and Scheier (1981, 1982), in which self-focused attention was defined as attention directed towards internal thoughts and emotions rather than focused on the external environment. In addition, Daugherty and Lawrence (1996, p. 72) stated that self-focused attention "involves attending to one's current status and evaluating that status versus attending to one's goals and expectations". By definition, when a task or environment causes a person to observe or evaluate the self, self-focused attention increases. For

example, videos and cameras directed at the participant, the presence of mirrors, and completion of questionnaires (that include the analysis of the self) have all been used to increase self-focused attention (Daugherty & Lawrence, 1996).

Borden, Lowenbraun, Wolff, and Jones (1993) described self-focus as having both a cognitive process and content. The process component refers to directing cognitive activity toward self-referent information, whereas the content of this self-referent information can vary from attending to one's own physiological cues to heightened self-awareness. This cognitive construct has been researched in a number of studies focusing on clinical disorders such as depression, schizophrenia, panic disorder, and alcohol abuse (Ingram, 1990).

According to Carver and Scheier (1981) self-focused attention is not necessarily aversive. Sedikides (1992) explained that if an individual believes that meeting their standards is beyond their capabilities, then self-focused attention would be aversive and perhaps lead to behavioural withdrawal. In contrast, if an individual believes they can match the standard they set themselves, then self-focused attention "is likely to induce behavioural persistence toward goal attainment" (p. 581). Therefore, significantly increased self-focused attention might have a positive impact on some research participants. Daugherty and Lawrence (1996) have argued that for participants who are well adjusted and/or have recently experienced positive life events, increased self-focus engendered through questionnaires may be reinforcing and pleasurable. By contrast, for participants who are less well adjusted and experiencing negative life events, the

high self-focus required in completing questionnaires with many self-evaluative questions might temporarily amplify their experience of negative emotions.

Gibbons et al. (1985) manipulated self-focused attention with depressed participants and found that increasing self-focused attention intensified the depressed participants' negative affect. Taken together, these studies can be interpreted as showing that certain stimuli, such as completing questionnaires, might be an emotionally painful experience for less well-adjusted individuals.

Daugherty and Lawrence (1996) investigated this hypothesis by examining the emotional reaction of male university students to completing a battery of self-focusing psychological tests. They predicted that negative emotional reactions would be related to the participants' level of neuroticism and negative recent life-events, whereas positive emotional reactions would be related to extroversion and positive recent life-events. Neuroticism was defined by Daugherty and Lawrence (1996) as being "emotionally unstable and at risk for general psychopathology" (p. 73), and extroversion was defined as being "outgoing, confident and sociable" (p. 73). As predicted, they found that a positive emotional reaction to the self-focusing experience was strongly related to extroversion (measured by Eysenck Personality Questionnaire) and positive life events (measured by Life Experiences Survey). Similarly, a negative emotional reaction to completing the questionnaires was related to neuroticism and negative recent life experiences.

A major limitation of Daugherty and Lawrence's (1996) study was that no initial determination of participants' emotional state was taken prior to completing

the questionnaires. Daugherty and Lawrence assumed that the participants' emotional state after completing the psychological questionnaires was caused by their participation. No causal link can be established however, without a pretest of the participants' emotional state. For example, it is possible that the self-reported emotional state of the participants might not have changed throughout the entire procedure. Therefore, it is important that the participants' emotional state be measured both before and after their participation. Only then can conclusions about their participation be made.

Another limitation acknowledged by Daugherty and Lawrence (1996) in their study was that the effects of participation on female participants were not examined. Instead, they focused on a male population only. There is evidence (Ingram, Cruet, Johnson, & Wisnicki, 1988) to suggest that men and woman exhibit a different propensity to self-focus to certain stimuli (e.g., writing stories about oneself, the presence of mirrors and cameras). Ingram et al. speculated that there might be sex differences in self-focused attention, with the effects stronger for females. For example, Ingram et al. found that increasing self-focussed attention (through the presence of a mirror) immediately after a negative event increased the level of distress among participants high in feminine characteristics more than among those high in androgynous or masculine characteristics (measured by the Bem Sex Role Inventory). Moreover, Strack, Blaney, Ganelen, and Coyne (1985) described how females reported significantly more transient self-focused attention on a single questionnaire item than males. In addition,

Slapion and Carver (1981) suggested gender differences in regard to test anxiety and self-focused attention. They reported a performance enhancing effect for test-anxious males, but not for females, in response to the same self-focusing stimulus. Therefore, based on the few studies available, one might speculate that sex differences in regard to self-focused attention do exist with females appearing more prone to self-focus (see also Ingram et al., 1988). At this stage, however, the short-term effects of research participation on female university students remains unknown.

The present research investigated the short-term effects of research participation on male *and* female university students. Four hypotheses were examined:

1. A self-focusing task compared to a non self-focusing task will significantly increase average levels of emotional arousal.
2. The amplification of emotional reactions will be greater in females than males.
3. Extroversion and positive recent life experiences in undergraduate university students will predict positive emotional reactions to the self-evaluative experience.
4. Neuroticism and negative recent life experiences in undergraduate university students will predict negative emotional reactions to the self-evaluative experience.

Method

Participants

The participants in this research were 114 volunteers (40 males and 74 females) from undergraduate psychology classes at Edith Cowan University, Western Australia. In this sample, 49 participants were first year students, 35 were second year students, 28 were third year students, and 2 were fourth year students. The mean age of the participants was 27 years (the ages ranged from 18 years to 50+ years).

Materials

The materials used in the present investigation included: (a) the Lazarus Stress Questionnaire (LSQ); (b) the Eysenck Personality Questionnaire (EPQ) - Revised Short Scale; (c) the Life Experiences Survey (LES); (d) the Mazes subtest from the Wechsler Intelligence Scale for Children - Revised (WISC-III); and (e) the Coding subtest from the WISC-III. The materials are briefly described below.

The LSQ (see Appendix A) is a self-report measure that is sensitive to changes in emotional state over time (Folkman & Lazarus, 1985). In completing the LSQ, participants indicate the extent to which they experience each of 15 emotions, both positive and negative. Responses to the eight negative emotion items are summed to form the negative emotion reaction score, while responses to the seven positive emotion items are summed to form the positive emotion

reaction score. Folkman and Lazarus calculated test-retest reliabilities for the LSQ. The mean alpha ranged from .78 to .84.

The EPQ - Revised Short Scale (see Appendix B) is a 48 item self-report measure of extroversion, neuroticism, and psychoticism (Eysenck & Eysenck, 1991). Only the extroversion and neuroticism scales were used in the present study. According to Eysenck and Eysenck, individuals who score high on extroversion are typically sociable, impulsive, outgoing, confident and optimistic. Individuals who score high on neuroticism have been found to be anxious, moody, frequently depressed and emotionally unstable.

The LES (see Appendix C) is a self-report measure of 47 specific life events, plus three blank spaces in which participants can indicate other recent events they may have experienced (Sarason, Johnson, & Siegel, 1978). In completing the LES, participants rate separately the desirability and impact of each of the life events they have experienced in the previous six months. The total number of positive life events are calculated to form a positive life events score and the total number rated as negative events formed the negative life events score.

-The Mazes subtest in the WISC-III (see Appendix D) is a test of planning ability and perceptual organisation in children (Groth-Marnet, 1997). In the present investigation the mazes subtest simply served as a non-self focusing task.

The Coding subtest in the WISC-III (see Appendix E) is a test of short-term memory and visual-motor coordination in children (Groth-Marnet, 1997). The coding subtest also served as a non-self-focusing task.

Procedure

In order to simulate the conditions under which many undergraduate students participate in psychological research, potential participants were approached after their classes and given the option of participating. Participants were asked to read an information sheet (see Appendix F) outlining the research and what was expected of them. Once participants understood the procedure and agreed to participate, the questionnaires were handed out. Participants filled in the questionnaires in groups.

Participants were randomly assigned to one of two groups; both groups consisted of 57 participants. Group 1 completed the *self-focused* psychological test packet in the following order: (a) the LSQ (pre-test of emotional state); (b) the LES (measure of positive or negative life experiences); (c) the EPQ (measure of extroversion or neuroticism); and (d) the LSQ (post-test of emotional state). Group 2 completed the *non-self-focused* psychological test packet in the following order: (a) the LSQ (pre-test of emotional state); (b) the Mazes subtest (non self-focusing task); (c) the Coding subtest (non self-focusing task); and (d) the LSQ (post-test of emotional state).

After the test packets were returned the participants were debriefed about the experimental design and hypotheses. The participants' questions were

answered and participants gave feedback about their experiences. This debriefing process lasted approximately ten minutes.

Results

Analysis of data involved paired samples t-tests comparing the self-focused with non-self-focused groups and males with females. The participants' post-test LSQ score was used as the DV. Hierarchical regression analyses were used to determine the contribution of the predictor variables.

Participants reported significantly more positive emotional reactions to participating in the research ($M = 2.41$, $SD = 1.11$) than negative emotional reactions ($M = 0.51$, $SD = 0.85$), $t(113) = 23.26$, $p < .0001$.

Hypothesis 1

The first question posed in this research is whether a self-focusing task compared to a non-self-focusing task will significantly increase average levels of emotional arousal. The DV used was the participants' score on the LSQ. In the non-self-focused group, there were no significant differences between the participants pre-test positive emotional scores and their post-test scores. Similarly, no differences were found between pre-test negative emotion scores and post-test scores.

Contrary to expectations, in the self-focussed group, no significant differences were observed between the participants pre-test positive emotional scores and their post-test scores. In addition, there was no significant difference

between the participants pre-test negative emotional scores and their post-test scores, $t(57) = 1.93, p = 0.058$.

Hypothesis 2

Hypothesis 2 stated that the amplification of emotional reactions will be greater in females than males. Paired samples t-tests were used to compare differences between the pre-test emotional scores and the post-test scores for male and female participants. In the self-focussed group (see Table 1) it was found that males pre- and post-test negative emotional reactions were significantly different, $t(19) = 2.11, p < .05$. No significant differences were observed for positive emotional reactions for male participants. For female participants in the self-focused group, scores for both positive and negative emotions did not significantly vary from pre- to post-test.

In the non-self-focused group, no significant differences were observed between males and females in regard to both positive and negative emotional reactions. Contrary to expectations, females did not show any significant differences between pre- and post-test positive or negative emotions.

To gain effective power for the present research, a sample size of approximately 160 participants per group was required rather than the 57 participants per group used. Given this small sample, it is unlikely that the test was powerful enough to find a significant difference between the groups.

Hypothesis 3

Hypothesis 3 predicted that extroversion and positive recent life

Table 1

Self-focused Groups' Pre- and Post-test Emotional Scores on the LSQ

Variable	Males		Females	
	Mean	SD	Mean	SD
Pre-test positive emotional reaction	2.08	.77	2.40	.88
Post-test positive emotional reaction	2.00	.95	2.46	.90
Pre-test negative emotional reaction	.17	.29	.74	1.01
Post-test negative emotional reaction	.00	.20	.57	.86

experiences in undergraduate university students will predict positive emotional reactions to the self-evaluative experience. Regression analyses were conducted to determine the contribution of the predictor variables. The predictor variables for positive emotional reaction included participants' extraversion scores and recent life experiences, while negative emotional reactions to participation were predicted by the participants' neuroticism scores and negative recent life experiences. As expected, a positive emotional reaction to participating in the research was predicted by extraversion ($\beta = .44, p < .01$), but contrary to expectations, not by recent positive life experiences ($\beta = .04, p > .70$). The linear

combination of extraversion and positive life experiences accounted for approximately 21% of the variance in positive emotional reaction, $F(2, 55) = 7.30, p < .01$. Entering *sex of participant* into the regression significantly contributed to the variance and together with extraversion and positive life experiences accounted for 27% of the variance in positive emotional reaction, $F(3, 54) = 6.61, p < .01$.

Hypothesis 4

The final hypothesis stated that neuroticism and negative recent life experiences in undergraduate university students will predict negative emotional reactions to the self-evaluative experience. Results suggest that negative emotional reaction was predicted by neuroticism ($\beta = .28, p < .05$), but not by negative recent life experiences ($\beta = .21, p > .09$). The linear combination of neuroticism and negative recent life experiences accounted for approximately 15% of the variance in negative emotional reaction, $F(2, 55) = 4.88, p < .01$. Furthermore, when sex of participant was entered into the equation, it significantly contributed to the variance (21%) in negative emotional reaction, $F(3, 54) = 4.70, p < .01$.

As sex appeared to significantly contribute to the variance in post-test emotional reaction, further regression analyses were performed separately for males and females. For males (see Table 2), a positive emotional reaction was predicted by extraversion ($\beta = .79, p < .01$), but not by positive recent life experiences ($\beta = -.09, p > .53$). The linear combination of extraversion and

positive life experiences accounted for approximately 64% of the variance in positive emotional reaction for males, $F(2, 17) = 15.52, p < .01$. In contrast, the linear combination of neuroticism and negative life experiences only accounted for 15% of variance in negative emotional reaction and was not significant $F(2, 17) = 1.46, p > .05$.

Table 2

Results of Two Regression Analyses for Male Participants

Variable	Post-test positive emotional reaction			Post-test negative emotional reaction		
	<i>r</i>	<i>R Square</i>	<i>p</i>	<i>r</i>	<i>R Square</i>	<i>p</i>
Extraversion	.798	.637	.000	-	-	-
Positive life events	.160	.026	.523	-	-	-
Neuroticism	-	-	-	.383	.147	.239
Negative life events	-	-	-	.268	.072	.162

For female participants (see Table 3) a negative emotional reaction to participation was predicted by neuroticism ($\beta = .30, p < .05$) but not by negative life experiences ($\beta = .27, p > .09$). The linear combination of neuroticism and negative life experiences accounted for approximately 19% of the variance in

negative emotional reaction for females, $F(2, 35) = 3.90, p < .05$. In contrast, positive emotional reaction was not predicted by extraversion or positive life experiences.

Table 3

Results of Two Regression Analyses for Female Participants

Variable	Post-test positive emotional reaction			Post-test negative emotional reaction		
	<i>r</i>	<i>R Square</i>	<i>p</i>	<i>r</i>	<i>R Square</i>	<i>p</i>
Extraversion	.343	.117	.215	-	-	-
Positive life events	.278	.077	.173	-	-	-
Neuroticism	-	-	-	.426	.182	.057
Negative life events	-	-	-	.301	.091	.093

Discussion

The present research examined the emotional reaction of male and female undergraduate students after they completed either self-focused or non-self-focused psychological questionnaires. In general, the participants reported a significantly more positive than negative emotional reaction to completing the questionnaires.

Previous research by Daugherty and Lawrence (1996) examined participants emotional state *after* their participation but did not take into account a pre-test measure. The present investigation also examined the participants' emotional state, but in an extension of Daugherty and Lawrence's work, both pre- and post-test measures of emotional state were taken. In this way we are in a better position to determine the effects of the independent variable (self-focussed vs. non self-focussed questionnaires) on the emotional effects of participation.

The hypothesis that a self-focused task compared to a non-self-focused task would significantly increase average levels of emotional arousal was not supported. This finding conflicts with previous research that suggested a relationship between emotion and self-focus. For example, Salovey (1992) stated that sad moods are associated with increased self-focused attention, whereas happy moods are associated with decreased self-focused attention. Also, Ingram (1990) reviewed the literature on mood and self-focused attention and concluded that both clinical and normal populations show consistent correlations between scores on depression scales and measures of private self-consciousness. Finally, Salovey discussed the possibility that self-focused attention *leads* to mood change, a hypothesis that the present investigation does not support.

A number of explanations for this conflicting finding exist. The most obvious explanation for finding no difference between the self-focused and non-self-focused groups might be that the questionnaires used to produce the self-focusing effect might not have been effective. That is, although self-report

questionnaires have been identified as stimuli that have the potential to increase self-focus, they may not increase self-focus as effectively as cameras and mirrors. For example, videos and cameras directed at the participant and the presence of mirrors have been used to increase self-focused attention (Ingram et al., 1988), whereas questionnaires have not been used in the past. Therefore, comparing questionnaires that have a weak self-focusing effect with a non-self-focusing task may not yield significant differences because they are not *that* different in nature.

A second explanation again focuses on the measures used. The present research involved measuring the participants' pre-test emotional state. By definition, any activity that requires a person to observe or evaluate him or herself may lead to increased self-focused attention. Therefore, when participants completed the LSQ (by definition a self-focusing task) before they were exposed to the self-focus or non-self-focus manipulation, their pre-test emotional state may have become significantly elevated. It may be argued then that the differences between the self-focused and non-self-focused groups could have been larger than what was found if the non-self-focused group was not required to complete the pre-test of emotional state (the LSQ). That is, when the non-self-focused group completed the LSQ they were in fact participating in a self-focused task. The same is true for the post-test of emotional state. This problem, however, is unavoidable in a replication study such as this where pre- and post-test measures are required to determine whether a participant's emotions changed during the course of their participation. Nevertheless the effect of these self-focused tasks

may have narrowed the differences between the two groups. In their research, Daugherty and Lawrence (1996) acknowledged the potential problem of using a single assessment method, namely a written self-report measure (the LSQ). They suggested that future studies should employ multiple assessments of emotional reactions. Daugherty and Lawrence stated that physiological reactions to participation (e.g., heart rate, electrodermal response) might also be measured in an attempt to increase reliability.

Contrary to expectation, few differences were found between the participants' pre-test emotional state with their post-test scores in both the self-focused and non-self-focused groups. This finding suggests that overall, the participants' emotional state altered minimally during the course of their participation. Further, this finding suggests that the previous conclusions made by Daugherty and Lawrence (1996), who stated that participants' emotional changes were due to participation in research, may not be justified. That is, the present study suggested no difference between the participants' pre- and post-test scores. As Daugherty and Lawrence did not take pre-test scores, it appears their notion that participation in research "could be an emotionally painful experience" (p. 72) is far from the case. Instead, it appears that completing questionnaires did little to elevate the participants' emotions at all. The only significant differences observed between pre- and post-test scores was in the self-focused group where males' pre and post-test negative emotional reactions changed significantly. Therefore, the

hypothesis that the temporary amplification of emotional reactions would be greater for females than males was not supported.

Previous research has implied that males and females exhibit a different propensity to self-focus in response to certain stimuli. Specifically, research has suggested that females may be more prone to direct their attention internally in response to certain stimuli. Ingram et al. demonstrated that female participants increased self-focus even in a condition not specifically designed to promote self-awareness (i.e., where a video camera was removed from the room). Ingram and colleagues concluded that females show “a readiness... to engage in self-focused attention” (p. 970) and also tend to self-focus in response to a greater range of stimuli when compared to men. Ingram et al. did not include answering questionnaires in the “range of stimuli” that appeared to increase self-focused attention among females. It may be that questionnaires engage different self-focussing processes than do mirrors or video cameras, thus explaining the difference in the findings. That is, Daugherty and Lawrence’s (1996) assumption that personality and life experience questionnaires cause a self-focusing effect equal to that of cameras and mirrors may not be justified.

The hypothesis that negative emotional reactions to the self-evaluative experience would be related to neuroticism and negative recent life experiences was partially supported. In addition, the hypothesis that positive emotional reactions to the self-evaluative experience would be related to extroversion and positive recent life experiences was also partially supported. The present data

provided evidence to suggest that personality factors, such as extraversion and neuroticism, had a greater affect in changing the participants emotional state during research than their recent life experiences. Specifically, the participants' extraversion appeared to be related to positive emotional reactions to participation, while a negative emotional reaction to the self-evaluative experience was related to neuroticism.

These findings supported those of Daugherty and Lawrence (1996) who suggested that participant's level of extraversion or neuroticism was related to their positive or negative emotional reaction to participation. A conflicting finding, however, was the lack of influence that recent life experiences had on the participants' emotional reaction. Perhaps the participants in Daugherty and Lawrence's study (US male military students) rated their life experiences differently to the students in the present investigation. Or perhaps the two samples did in fact experience quite different life events over the previous 12 months.

Previous researchers have expressed the importance of continually reevaluating the ethics of research practices (Daugherty & Lawrence, 1996; McCord, 1991; Sieber & Saks, 1989). The present study again emphasises the importance of ethical treatment of human participants by specifically considering the impact of participation on individuals. In all research, a balance must be achieved between furthering psychological knowledge and protecting participants. Striking this balance is not new to researchers who are well accustomed to the

close scrutiny of institutional and professional review boards. But some authors remain skeptical about tertiary institutions' ability to weigh up costs and benefits, particularly those institutions that use coercion to gain students participation (e.g., Diamond & Reidpath, 1994). Diamond and Reidpath argued that it is time for Australian Universities to end unethical treatment of student participants. They suggested that the Australian Psychological Society withdraw accreditation from psychology departments who continue to breach ethical guidelines, in an attempt to "afford students the same rights and protections as other human beings" (p. 146). Gillis (1976) also suggested that researchers view participants less as "subjects" to be manipulated and more as unique collaborators in the research process.

As described by Stanley et al. (1987), social science methods can be readily applied to a wide range of ethical issues in research. Despite this, in some ways the social sciences "have lagged behind other disciplines, including medicine and law, in addressing ethical issues in science" (p. 739). Kaufmann (1983) described psychology as a forerunner in developing ethical guidelines for research. However, Kaufmann argues that psychology has been slow to address the nuances of the range of ethical issues in research, as indicated by the relatively few articles on informed consent. This lack of knowledge about ethical issues in research is concerning, according to Stanley et al. who have called for more empirical studies on ethical issues in research and recommended gathering data relevant to ethical issues whenever researchers use human participants. The results of the present

investigation adds to the growing body of empirical studies about ethical issues in research. Only through communicating with participants and systematic debriefing can researchers assess their own work and contribute to the knowledge about research ethics.

The weighing up of costs and benefits in research is an ongoing process that requires continued investigation. The present investigation suggests that for most participants, completing paper and pencil questionnaires causes little distress or negative emotions. Future research efforts should focus specifically on which emotions, if any, are affected by research participation and the duration of affect.

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Appendix A

Lazarus Stress Questionnaire

Please indicate the extent to which you are currently feeling each of the following emotions (Please circle ONE response for each emotion).

	Not at all					A great deal					
Worried	0	1	2	3	4	5					
Fearful	0	1	2	3	4	5					
Anxious	0	1	2	3	4	5					
Confident	0	1	2	3	4	5					
Hopeful	0	1	2	3	4	5					
Eager	0	1	2	3	4	5					
Angry	0	1	2	3	4	5					
Sad	0	1	2	3	4	5					
Disappointed	0	1	2	3	4	5					
Guilty	0	1	2	3	4	5					
Disgusted	0	1	2	3	4	5					
Exhilarated	0	1	2	3	4	5					
Pleased	0	1	2	3	4	5					
Happy	0	1	2	3	4	5					
Relieved	0	1	2	3	4	5					

Thank you for your participation

Appendix B

Eysenck Personality Questionnaire

Please answer each question by putting a circle around the "YES" or "NO" following the question. There are no right or wrong answers and, no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

PLEASE REMEMBER TO ANSWER EACH QUESTION

- | | | | |
|----|---|-----|----|
| 1 | Does your mood often go up and down? | YES | NO |
| 2 | Do you take much notice of what people think? | YES | NO |
| 3 | Are you a talkative person? | YES | NO |
| 4 | If you say you will do something, do you always keep your promise no matter how inconvenient it might be? | YES | NO |
| 5 | Do you ever feel "just miserable" for no reason? | YES | NO |
| 6 | Would being in debt worry you? | YES | NO |
| 7 | Are you rather lively? | YES | NO |
| 8 | Were you ever greedy by helping yourself to more than your fair share of anything? | YES | NO |
| 9 | Are you an irritable person? | YES | NO |
| 10 | Would you take drugs which may have strange or dangerous effects? | YES | NO |
| 11 | Do you enjoy meeting new people? | YES | NO |
| 12 | Have you ever blamed someone for doing something you knew was really your fault? | YES | NO |
| 13 | Are your feelings easily hurt? | YES | NO |
| 14 | Do you prefer to go your own way rather than act by the rules? | YES | NO |
| 15 | Can you usually let yourself go and enjoy yourself at a lively party? | YES | NO |
| 16 | Are all your habits good and desirable ones? | YES | NO |
| 17 | Do you often feel "fed-up"? | YES | NO |
| 18 | Do good manners and cleanliness matter much to you? | YES | NO |
| 19 | Do you usually take the initiative in making new friends? | YES | NO |
| 20 | Have you ever taken anything (even a pin or button) than belongs to someone else? | YES | NO |

21	Would you call yourself a nervous person?	YES	NO
22	Do you think marriage is old-fashioned and should be done away with?	YES	NO
23	Can you easily get some life into a rather dull party?	YES	NO
24	Have you ever broken or lost something belonging to someone else?	YES	NO
25	Are you a worrier?	YES	NO
26	Do you enjoy cooperating with others?	YES	NO
27	Do you tend to keep in the background on social occasions?	YES	NO
28	Does it worry you if you know there are mistakes in your work?	YES	NO
29	Have you ever said anything bad or nasty about anyone?	YES	NO
30	Would you call yourself tense or "highly strung"?	YES	NO
31	Do you think people spend too much time safeguarding their future with savings and insurance?	YES	NO
32	Do you like mixing with people?	YES	NO
33	As a child were you ever cheeky to your parents?	YES	NO
34	Do you worry too long after an embarrassing experience?	YES	NO
35	Do you try not to be rude to people?	YES	NO
36	Do you like plenty of bustle and excitement around you?	YES	NO
37	Have you ever cheated at a game?	YES	NO
38	Do you suffer from nerves?	YES	NO
39	Would you like other people to be afraid of you?	YES	NO
40	Have you ever taken advantage of someone?	YES	NO
41	Are you mostly quiet when you are with other people?	YES	NO
42	Do you often feel lonely?	YES	NO
43	Is it better to follow society's rules than go your own way?	YES	NO
44	Do other people think of you as being very lively?	YES	NO
45	Do you always practise what you preach?	YES	NO
46	Are you often troubled about feelings of guilt?	YES	NO
47	Do you sometimes put off until tomorrow what you ought to do today?	YES	NO
48	Can you get a party going?	YES	NO

Appendix C

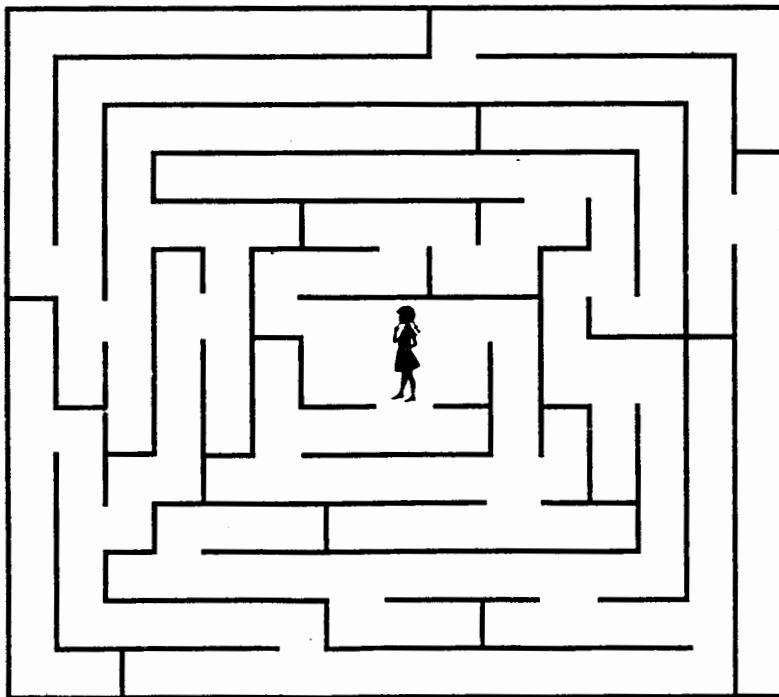
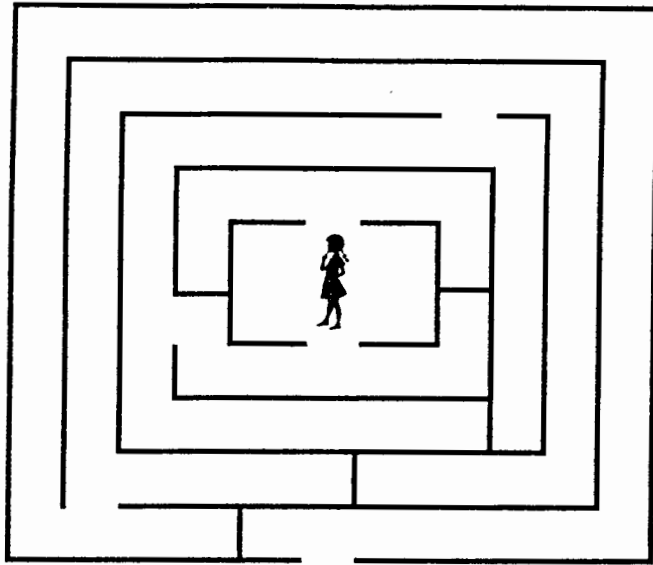
The Life Experiences Survey

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. *Please check those events which you have experienced in the past twelve months.* Be sure that you check all marks are directly across from the items they correspond to.

Also, for each item checked below, *please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred.* That is, *indicate the type and extent of impact that the event had.* A rating of -3 would have an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

1. Marriage	-3	-2	-1	0	+1	+2	+3
2. Detention in jail or comparable institution	-3	-2	-1	0	+1	+2	+3
3. Death of Spouse	-3	-2	-1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)	-3	-2	-1	0	+1	+2	+3
5. Death of a close family member:							
a. mother	-3	-2	-1	0	+1	+2	+3
b. father	-3	-2	-1	0	+1	+2	+3
c. brother	-3	-2	-1	0	+1	+2	+3
d. sister	-3	-2	-1	0	+1	+2	+3
e. grandmother	-3	-2	-1	0	+1	+2	+3
f. grandfather	-3	-2	-1	0	+1	+2	+3
g. other (specify)	-3	-2	-1	0	+1	+2	+3
6. Major change in eating habits (much more or less food intake)	-3	-2	-1	0	+1	+2	+3
7. Foreclosure on mortgage or loan	-3	-2	-1	0	+1	+2	+3
8. Death of close friend	-3	-2	-1	0	+1	+2	+3
9. Outstanding personal achievement	-3	-2	-1	0	+1	+2	+3
10. Minor law violations (traffic tickets)	-3	-2	-1	0	+1	+2	+3
11. <i>Male:</i> Wife/girlfriend pregnancy	-3	-2	-1	0	+1	+2	+3
12. <i>Female:</i> Pregnancy	-3	-2	-1	0	+1	+2	+3
13. Changed work situation (responsibilities, hours, conditions)		-3	-2	-1	0	+1	+2
+3							
14. New job	-3	-2	-1	0	+1	+2	+3
15. Serious illness or injury of close family member:							
a. mother	-3	-2	-1	0	+1	+2	+3
b. father	-3	-2	-1	0	+1	+2	+3
c. brother	-3	-2	-1	0	+1	+2	+3
d. sister	-3	-2	-1	0	+1	+2	+3
e. grandmother	-3	-2	-1	0	+1	+2	+3
f. grandfather	-3	-2	-1	0	+1	+2	+3
g. other (specify)	-3	-2	-1	0	+1	+2	+3
16. Trouble with employer (in danger of losing job, suspended, demoted)	-3	-2	-1	0	+1	+2	+3

17. Sexual Difficulties	-3	-2	-1	0	+1	+2	+3
18. Trouble with in-laws	-3	-2	-1	0	+1	+2	+3
19. Major change in financial status (much better or much worse off)	-3	-2	-1	0	+1	+2	+3
20. Major change in closeness of family members (increased or decreased closeness)	-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member (through birth, adoption, family member moving in)	-3	-2	-1	0	+1	+2	+3
22. Change of residence	-3	-2	-1	0	+1	+2	+3
23. Marital separation due to conflict	-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance)	-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation with partner	-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments with partner (a lot more or less)	-3	-2	-1	0	+1	+2	+3
27. Change in partner's work (beginning new work, changing jobs, retirement)	-3	-2	-1	0	+1	+2	+3
28. Major change in usual type and/or amount of recreation	-3	-2	-1	0	+1	+2	+3
29. Borrowing more than \$10 000	-3	-2	-1	0	+1	+2	+3
30. Borrowing less than \$10 000	-3	-2	-1	0	+1	+2	+3
31. Being fired from job	-3	-2	-1	0	+1	+2	+3
32. Male: Partner having abortion	-3	-2	-1	0	+1	+2	+3
33. Female: Having abortion	-3	-2	-1	0	+1	+2	+3
34. Major personal illness or injury	-3	-2	-1	0	+1	+2	+3
35. Major change in social activities (increased or decreased participation)	-3	-2	-1	0	+1	+2	+3
36. Major change in living conditions of family (building/renovating home, deterioration of home/ neighbourhood)	-3	-2	-1	0	+1	+2	+3
37. Divorce	-3	-2	-1	0	+1	+2	+3
38. Serious injury or illness of close friend	-3	-2	-1	0	+1	+2	+3
39. Retirement from work	-3	-2	-1	0	+1	+2	+3
40. Son or daughter leaving home	-3	-2	-1	0	+1	+2	+3
41. Ending of formal schooling	-3	-2	-1	0	+1	+2	+3
42. Separation from partner (due to work, travel)	-3	-2	-1	0	+1	+2	+3
43. Engagement	-3	-2	-1	0	+1	+2	+3
44. Breaking up with boy/girlfriend	-3	-2	-1	0	+1	+2	+3
45. Leaving home for the first time	-3	-2	-1	0	+1	+2	+3
46. Reconciliation with boy/girlfriend	-3	-2	-1	0	+1	+2	+3
<i>Other recent experiences which have had an impact on your life. List and rate:</i>							
47. _____	-3	-2	-1	0	+1	+2	+3
48. _____	-3	-2	-1	0	+1	+2	+3
49. _____	-3	-2	-1	0	+1	+2	+3
50. _____	-3	-2	-1	0	+1	+2	+3



Appendix E

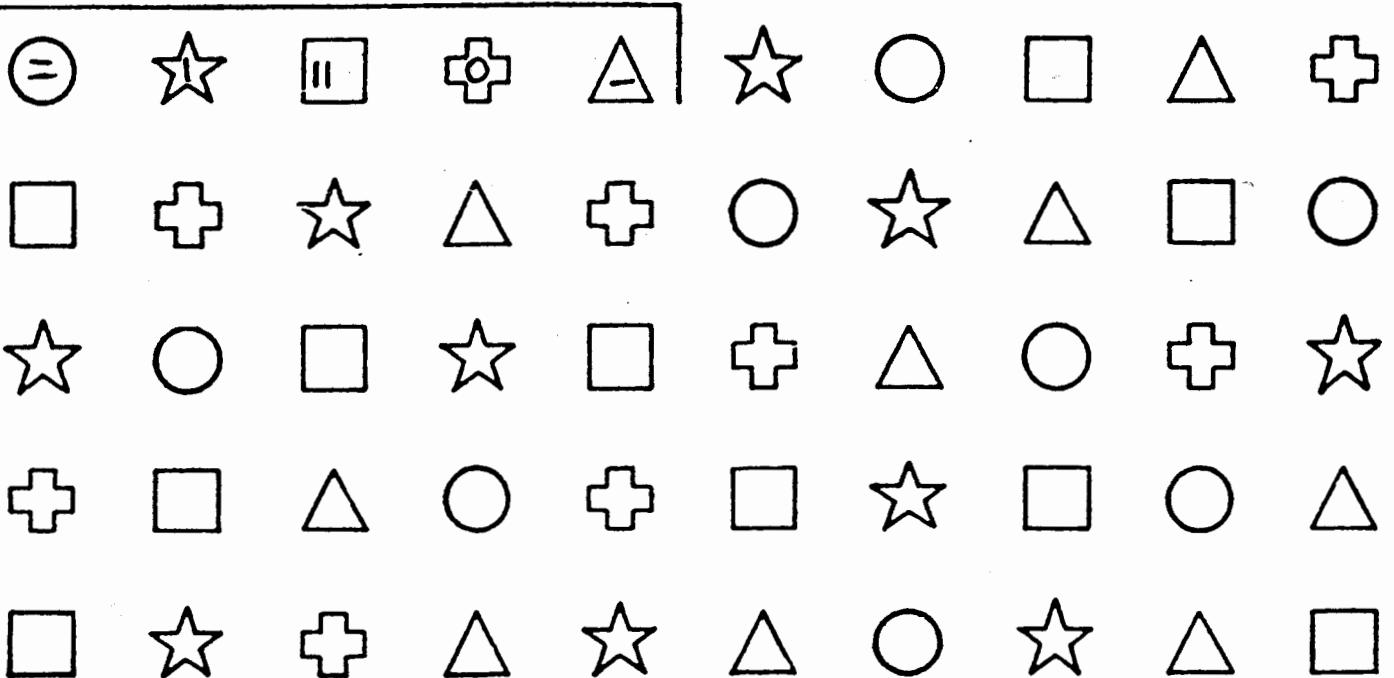
Coding Test

Listed below are five figures with a corresponding symbol placed inside each figure. As the sample demonstrates, please draw the correct symbol inside each of the blank figures.

A



SAMPLE



Appendix F

Survey Information Form

SURVEY INFORMATION FORM

Thank you for your attention. This study is being conducted as part of my Master of Psychology degree at Edith Cowan University. The purpose of the research is to gather more information about the short-term effects of participating in psychological research, and I would be grateful for your assistance.

As a participant in this study I would like you to complete the attached questionnaires. Your participation is entirely voluntary and should require 10 to 20 minutes of your time. If you agree to participate, please be aware that you are free to withdraw your participation at any stage or to decline to complete any part of the material. You will not be penalized in any manner if you refuse to participate or if you decide to withdraw from the experiment

The information obtained from you will be treated in the strictest confidence, and will remain anonymous. There is no need for you to record your name or any other information that could identify you.

It is anticipated that the information obtained from this research will be of use in evaluating and improving the experiences of participants in research studies. The findings may also be reported in a scientific journal but in a way that will be impossible to identify any individual participant.

Should you wish to find out about the results of the study, please feel free to write to me requesting a summary. Should you have any other queries regarding this project please feel free to contact me, or my research supervisor, at the address below.

Thank-you for participating.

Matthew Dunsire, Post-graduate student in Psychology

Ph. [REDACTED]

Dr. Paul Chang, Lecturer in Psychology

Department of Psychology

Edith Cowan University

Ph. [REDACTED]

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