5-9-2000

The relationship between locus of control and academic achievement and the role of gender

Smriti Goyal
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THE RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACADEMIC ACHIEVEMENT AND THE ROLE OF GENDER

by
Smriti Goyal

A Thesis
Submitted in partial fulfillment of the requirements of the Masters of Arts Degree of The Graduate School at Rowan University (May 2000)

Approved by

Date Approved 5-9-00
ABSTRACT

Smriti Goyal

The Relationship Between Locus of Control and Academic Achievement
and the Role of Gender

2000

Dr. Dihoff

School Psychology

This study examined the relationship between Locus of Control and academic achievement, and discussed the possibility of gender differences. Past research indicated a positive correlational relationship between internal scores and high academic achievement. Overall, the research regarding gender found males to be more internal than females. In this study, the 77 subjects were 10th grade American History students, placed in three different class levels, according to academic achievement the prior year. The Rotter’s Internal-External scale was administered to all the subjects during History class. These scores were then separately correlated with academic class level and gender. The statistical analysis found a correlation between Locus of Control and academic achievement, with a Pearson Correlation Coefficient of .387. According to data collected, females were more internal than males, however a level of significance was not found. Overall, this study supported the implications of past research because a positive relationship between Locus of Control and academic achievement was found.
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This study examined the relationship between Locus of Control and academic achievement, and discussed the possibility of gender differences. The statistical analysis found a positive correlation between Locus of Control and academic achievement. The gender data found females were slightly more internal than males, however not to a significant level.
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Chapter One: The Problem

Need:

This study attempts to contribute to the research on motivation and achievement by providing support to the findings of previous research. The theory of Locus of Control has been a topic of interest for the past several decades because it attempts to explain the differences in individual motivation. Examination of these differences may explain how to enhance individual motivation and achievement. The enhancement of motivation has become a marketable business, with the establishment of motivation seminars and self-help books. Motivational research has significant implications to individual academic, professional and personal enrichment.

Purpose:

This study examines the theory of Locus of Control by using Rotter’s Internal-External Scale to measure Locus of Control of tenth grade American History students. The students are in one of three class levels, based on prior academic achievement. The students complete the scale and indicate their gender category on the answer sheet. The test administrator then separates the answer sheets, according to class level. The I-E scores are then separately correlated with academic class level and gender. The purpose of this study is to examine the relationship between Locus of Control and academic achievement and to examine the possibility of gender differences.

Hypothesis:

A positive relationship exists between Locus of Control and academic achievement.
**Research Question:**

Is there a relationship between Locus of Control and gender?

**Theory:**

Regarding personality, the Social Learning perspective believes that when behavior is rewarded, expectancy is created. In other words, if the rewarded behavior result of the expectation of reward for the continued behavior. Julian B. Rotter bases his Locus of Control theory on this premise. Rotter believes that individual motivation differs, based on where one falls on the continuous range from internal to external Locus of Control.

According to Rotter’s theory, individuals with internal Locus of Control believe that rewards are a result of their own behavior, so are motivated to continue the behavior. Individuals with external Locus of Control believe rewards occur randomly as a product of the external world. These individuals do not see rewards as a product of their own behavior, so are not motivated to continue it. Rotter’s 29 item internal-external scale (23 questions and 6 fillers) measures where an individual falls on this continuous scale of Locus of Control. Therefore, individuals who obtain high internal scores, will believe that they have control over the rewards they receive. On the other hand, individuals who obtain high external scores view rewards as random occurrences, thus lacking a sense of personal control. According to this theory, individuals with high internal scores are motivated towards achievement, because they expect rewards to follow their behaviors.

**Definitions:**

**Academic Achievement**- to accomplish success in an academic setting.

**Advanced Placement** - the highest level of academic achievement
**College Prep** - the lowest level of academic achievement

**External Locus of Control** - the belief that rewards occur randomly, regardless of own behavior. The belief that fate decides what happens in life.

**Forced-choice Scale** - a test in which a pair of statements are given, and one must choose the statement that he most agrees with.

**Gender Differences** - the socially influenced differences between males and females.

**Honors** - the average level of achievement

**I-E Scale** - Rotter’s 29 item forced-choice scale which measures Locus of Control. Scale consists of 23 paired questions with one question representing an internal perspective, and the other an external perspective. The remaining 6 items are fillers, and are not calculated into score.

**Internal Locus of Control** - the expectancy or belief that rewards are a result of own behavior. The belief of having control of your own destiny.

**Locus of Control** - the range of belief that internal and/or external factors control rewards for behavior.

**Motivation** - internal or external drive towards achievement.

**Assumptions:**

- It must be assumed that the subjects each take the I-E scale objectively and seriously so an accurate measure is attained for each subject.

- It must be assumed each subject is appropriately placed in the correct class level, so that levels of achievement are accurate depictions of the subjects’ actual academic achievements.

- It must be assumed the quality and style of teaching is consistent across class levels.
Limitations:

- The sample size is small in number of subjects, especially when divided into categories based on class level and gender.
- The sample is not an accurate representation of a random selection, because subjects are primarily of the same socioeconomic level (middle class) and attend the same high school.

Overview:

This study examines the relationship of Locus of Control and academic achievement by reviewing the literature of past research. In this study, scores obtained on Rotter’s I-E scale are compared with different levels of academic achievement, based on class placement. The data collected is then statistically analyzed to examine if a correlation exists. The possibility of gender differences is also explored. The study concludes with possible implications for further studies. However, before the study begins, the literature already available is reviewed, and the implications considered.
Chapter Two: Literature Review

The theory of Locus of Control has been extensively researched for the past several decades. The application of this theory to academic achievement and related behaviors has been thoroughly examined. Revisions and modifications of Rotter’s I-E scale has created an abundant number of age-appropriate scales, which in turn has led to specific research for a variety of populations. The role of gender in regards to Locus of Control is also a popular subject of study. For the purposes of this study, it is imperative to review the past literature concerning the relationship between Locus of Control and academic achievement, while considering the possible effects of age and gender.

Locus of Control and Academic Achievement:

The literature available on Locus of Control and academic achievement was reviewed by Findley and Cooper (1983). They compiled 98 studies (consisting of 275 testable hypotheses) where a Locus of Control and academic achievement measure was compared. A statistically significant positive correlation was found for 193 of the 275 hypotheses. In other words, 70% of these hypotheses found internals to have significantly higher academic achievement than externals. Bar-Tal and Bar- Zohar (1977) reviewed 36 studies that examined the relationship between Locus of Control and academic achievement among children, adolescents and adults. They also found a positive correlation relationship between the two variables, regardless of population being examined.

According to Ray (1980), these conclusions are expected based on Rotter’s theory
of Locus of Control. An individual with internal control expects to be rewarded for performing specific behaviors. Therefore, the internal individual exerts the effort to achieve academically, and feels great pride when it is obtained. This positive emotional experience, in turn, makes achievement more appealing, which increases the performance of specific behaviors, and strengthens the expectation of reward.

Conversely, an individual with external control views rewards as a product of chance. Therefore the external individual is not motivated to perform specific behaviors, because an expectation between behavior and reward is not established. When success does occur, an emotional response does not occur, because the success is not believed to be a result of own behaviors. Ray (1980) believed an individual's perception of control creates different emotional responses. Therefore, the effect of emotional responses on motivation is fundamental to the theory of Locus of Control and its relationship with academic achievement.

**Locus of Control and Academic Achievement in Elementary School Students:**

Elementary School students who have high internal scores on Locus of Control scales have superior academic performance on standardized achievement tests and/or school performance (Crandall, Katkovsky & Preston, 1962; Phares, 1976; Lefcourt 1976; Butterfield, 1964). Uguroglu and Walberg (1979) completed a review of the relationship between motivation and achievement with children, and found 13 correlations between Locus of Control and grades and/or ability tests that averaged a correlation coefficient of .32. This correlation coefficient indicates a positive relationship between the two variables. Stipek & Weisz (1981) found several even when IQ was controlled.

McGhee and Crandall (1968) administered the Intellectual Achievement
Responsibility Questionnaire (IAR) to 102 third graders, 103 forth graders, and 99 fifth graders. This scale has 34 forced-choice items that specifically assess internal-external beliefs in terms of academic achievements. The scores obtained on this scale were then correlated with report card grades. The results of this study found children with high internal scores, in all grade levels, to have significantly higher report card grades.

In Bartel’s (1971) study, 431 students in grades one through six, were given the Bialer Children’s Locus of Control scale. These scores were then compared to a variety of academic achievement measures. Regardless of age, children with high internal scores had significantly higher scores on Iowa Test of Basic Skills, IQ tests, and Reading Readiness Tests. Internal children also have greater approach behaviors and are more persistent, which results in learning more facts, concepts, and superior problem solving skills, which enhances academic achievement (McGee & Crandall, 1968; Dukette & Wolk, 1972)

Studies have also shown Elementary School children to benefit academically by intervention techniques that enhance an internal perception of control (DeCharms, 1976). Stipek and Weisz (1981) found that when children were allowed greater control and freedom over the learning process, they achieved more academically, and their scores shifted towards internal scores on Locus of Control scales. The implications of this classroom intervention study are profound, because it reveals that when Locus of Control orientation is manipulated, academic performance improves.

**Locus of Control and Academic Achievement in Secondary School Students:**

McGee and Crandall (1968) administered the Intellectual Achievement Responsibility Questionnaire (IAR) to 35 third graders, 54 seventh graders and, 45 tenth
graders. The third graders were given the test in oral form, and the seventh and tenth graders took it in written form. The IAR scores were then compared to the average of all grades received in the two past marking periods. Internal scores significantly correlated with academic grades for all three groups of students. However, the correlation was stronger for seventh and tenth graders.

In examining the Locus of Control and academic achievement literature, Findley and Cooper (1983) found a curvilinear relationship, with correlations being stronger for adolescents than children and adults. Phares (1976) also found it easier to predict achievement of adolescents than adults, based on Locus of Control orientation. Rotter (1972) suggested that Locus of Control measures have the greatest predictability with new situations. Students during adolescence, are constantly experiencing new achievement situations, but as they become older, the novelty fades.

A study done by Crandall, Kathovsky, and Crandall (1965) examined 923 students in grades three through twelve for internal-external orientation shift. All students were administered the Intellectual Achievement Responsibility Questionnaire (IAR). The scores were then compared with Iowa Tests of Basic Skills and report card grade averages for the third, forth, and fifth grade children. Correlations were high at this age, averaging a correlation coefficient of .45. IAR scores of sixth, eighth, ninth, tenth, and twelfth grade students were compared to GPA and California Achievement Test scores. Correlations between IAR scores and achievement measures ranged between .20 and .50, with correlations for ninth graders being the strongest.

**Locus of Control and Academic Achievement in College Students:**

The study of Locus of Control and Academic Achievement continues into
adulthood. Internals continue to achieve greater academically than externals (Stipek & Weisz, 1981; Warehime, 1972; Prociuk & Breen, 1974; Hjelle, 1970). However, the correlations are not as significant as they are in children and adolescents (Hjelle, 1970).

Rotter (1975) had two explanations for this phenomenon. Firstly, as stated before, Locus of Control measures have greatest predictability with novel achievement situations. Secondly, there is the “defensive external” or individuals that adopt an external perspective as a defense mechanism to protect ego from failure. According to the theory, of Locus of Control, internal individuals believe that their accomplishments and failures are a result of own actions. When internal individuals succeed they feel a sense of pride. However, when they fail, they feel guilt and shame, which is damaging to the ego. Therefore, these individuals are still motivated to achieve academically, but they embody an external perspective. This weakens the correlation between Locus of Control and academic achievement because the Locus of Control scores are not an accurate measure of actual beliefs regarding control.

**Gender Differences:**

Findley and Cooper’s (1983) found male scores to be more internal than females. However, this may be due to social desirability (Stipek & Weisz, 1981). Based on traditional gender roles, females tend to believe that an internal perspective is inconsistent with female gender roles, and thus is socially undesirable. Stipek and Weisz (1981) found females who were high in beliefs of social desirability to have higher external scores than females with low beliefs in social desirability. Therefore, female responses on Locus of Control scales are influenced by their belief of appropriate gender roles. Thus, Locus of Control scores of females may not accurately depict actual beliefs.
Strickland and Haley (1980) administered the Rotter I-E scale to 200 males and 200 females. Men and women were both directed to respond to the scale as either “super males” (embodifying extreme male gender characteristics) or “super females” (embodifying extreme female gender characteristics). Men and women who completed the scale according to “super male” criteria obtained high internal scores. Conversely, those who responded according to “super female” criteria, obtained high external scores. This response bias represents the gender role expectations for males and females. Therefore, male may have higher internal Locus of Control than women as a result of appropriate gender roles.

**Summary:**

The research reviewed supports a positive correlation relationship between Locus of Control and academic achievement, with internal individuals achieving more academically. The significance of the correlation does vary with age, with strongest correlation being for adolescents. The investigation of gender differences found males to have higher internal scores on Locus of Control scales than females. However, this may be a reflection of appropriate gender roles that exist in society. Overall, the literature does support the hypothesis of the present study, which attempts to find support for a positive correlation between Locus of Control and academic achievement. Gender is also examined to find if a gender difference does exist.
Chapter 3: Design of Study

This study examined the relationship between Locus of Control and academic achievement in 10th grade High School students. The possibility of gender differences was also explored. This chapter specifically describes the sample, measures, design, procedure, hypothesis, and analysis used.

Sample:

Participants include 77 tenth grade students from a large High School in the Southern part of New Jersey. The High School is located in a middle class area, with families of diverse ethnic and racial backgrounds. The students are all American History students placed in one of three class levels: College Prep (14 male subjects/ 10 female subjects), Honors (14 male subjects/ 13 female subjects), and Advanced Placement (12 male subjects/ 14 female subjects). Class placement is based primarily on academic achievements the year before.

Measures:

The Locus of Control measure used in this study is Julian B. Rotter’s Internal-External Locus of Control Scale. The scale has 29 paired statements (including six filler questions), in a forced-choice format. In each pair, one statement represents an internal perspective and the other statement represents an external perspective. To obtain a score all external responses are totaled, so that scores range from 0 to 23(excluding six filler questions). The score represents the individual’s perspective of Locus of Control on an internal-external continuum.
Rotter’s I-E scale is the most predominantly used (over 50% of investigations) and cited scale in the Locus of Control literature (Lefcourt, 1984). The I-E scale has been administered to a large variety of samples, but is most applicable to adolescents and adults. Normative data collected by Strickland and Haley (1980) found I-E score $M=11.3$ (SD 4.4) for 113 adolescent males and $M=12.2$ (SD 4.2) for 146 adolescent females. Lefcourt (1991) found an I-E scale internal reliability coefficient of .70 for 400 college students. The test-retest reliability coefficients are .72 after one month and .55 after two months for 60 college students (Lefcourt, 1984).

The academic achievement measure in this study is placement in one of three class levels, College Prep, Honors, and Advanced Placement. Placement is primarily based on academic grades earned the year before in World History, and overall grade point average. Teacher recommendations were considered when class placement was not clear based on academic achievements made the year before.

**Design:**

This study is a correlational design, which examined the relationship between Locus of Control and academic achievement of tenth grade American History students from a large High School in Southern New Jersey. Gender was also correlated with Locus of Control to see if any differences exist. The variables of this study were I-E scores (ranging from 0 to 23), academic achievement (class levels), and gender (male or female). Once the data was collected, correlations were examined separately for Locus of Control and academic achievement and Locus of Control and gender.

**Procedure:**

The High School principal provided consent for the I-E scale to be administered
to the 77 students in this study. The classroom teacher provided each student with an I-E scale questionnaire and scantron to record answers on, at the beginning of class. The teacher told the students to follow the directions on the questionnaire and record the answers on the scantron. The students were also instructed to write their gender category on top of the scantron sheet. When all the students were finished, the teacher collected the questionnaires and scantron sheets, and resumed to the normal routine. The same teacher administered the scale in one class, at each level, and separated the answer sheets by class level. The researcher then collected the answer sheets from the teacher and scored them according to the I-E scale’s scoring criteria. Therefore, each subject has an I-E score, class level, and gender category, which will be analyzed statistically.

**Null Hypothesis:**

No relationship exists between Locus of Control and academic achievement.

**Alternative Hypothesis:**

A positive correlation relationship exists between Locus of Control and academic achievement.

**Research Question:**

Is there a relationship between Locus of Control and gender?

**Analysis:**

A Pearson Correlation was applied to I-E scores and class level to examine if a positive relationship exists between the two variables. In other words, will higher internal I-E scores be related to placement in higher class levels? A one-way ANOVA was then applied to see if I-E scores differ significantly between class levels. In an attempt to answer the research question, a Pearson Correlation was applied to gender and I-E scores
to see if a relationship exists. The statistical analysis was then interpreted, in an attempt to find support for the hypothesis and an answer to the research question.

**Summary:**

In this chapter, the design of the study to examine the relationship between Locus of Control and academic achievement was outlined. The 77 subjects were described as being from a large, ethically and racially diverse school district, in a middle class area in southern New Jersey. The measure, the Internal-External Locus of Control Scale was explained and its applicability justified. The data collection procedure was described and the models of analysis were designated. All that was described in this chapter, became a reality in the next chapter.
Chapter Four: Results of Analysis

The I-E scale of Locus of Control was given to 77 students in 10th grade American History class. The students were divided into three groups according to class level, Advanced Placement (AP), Honors, and College Prep (CP). The range of I-E scores among all students was 4 to 20 with the test score range being 0 to 23, representing the internal-external continuum. The range of I-E scores for students in the Advanced Placement class was 4 to 16, Honors class was 5 to 17, and College Prep class was 7 to 20. The ranges of scores represent a trend of internal scores to external scores as the class levels descend in the level of academic achievement. The mean of I-E scores for each class level represent this trend, as displayed in Table 4.1.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>MEAN</th>
<th>N</th>
<th>Std. Deviation</th>
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<tr>
<td>AP</td>
<td>9.81</td>
<td>26</td>
<td>3.464</td>
</tr>
<tr>
<td>Honors</td>
<td>11.48</td>
<td>27</td>
<td>2.992</td>
</tr>
<tr>
<td>CP</td>
<td>13.21</td>
<td>24</td>
<td>3.538</td>
</tr>
</tbody>
</table>

According to this table, as the class levels decrease in levels of academic achievement, from AP to CP, the mean of I-E scores decrease from internal scores to external scores, by increasing in number value (from 9.8077 to 11.4815 to 13.2083). This
relationship between academic achievement and I-E scores indicates a positive correlational relationship between the two variables, as illustrated by Figure 4.1.

Figure 4.1

Relationship Between Means of I-E Scores and Academic Achievement According to Class Levels

Figure 4.1 illustrates the relationship between academic achievement and I-E scores, because as class level decreases, I-E scores decrease in terms of internal Locus of Control. In other words, a positive relationship exists between academic achievement and internal Locus of Control.

The Pearson Correlation Coefficient for I-E scores and academic achievement is .387, which is significant at the 0.01 level (1-tailed). The Pearson Correlation Coefficient of .387 indicates a positive correlation between the two variables. In other words, the
higher the academic achievement level, the more internal the I-E score, as indicated by the means of I-E scores for each class level.

A One-Way ANOVA was then applied to analyze the ratio of variance of scores between class levels and within class levels. The One-Way ANOVA computed on I-E scores indicates a statistically significant difference in I-E scores between class levels, $F(2,74) = 6.508$, $p < .01$. The statistical analysis of the relationship between academic achievement and I-E scores revealed a positive correlation between the two variables that is statistically significant at the 0.01 level. Moreover, the results of the One-Way ANOVA provide support for the relationship by indicating a significant difference in I-E scores between class levels. Therefore, the Null Hypothesis was rejected. The statistical analysis supports the Alternative Hypothesis, because a significant positive correlation relationship exists between academic achievement and internal Locus of Control.

The relationship between gender and Locus of Control was also considered. Of the 77 subjects in the study, 37 were female and 40 were male. The range of scores was 4 to 18 for females, and 6 to 20 for males. According to these ranges, females seem slightly more internal than their male counterparts. Table 4.2 also provides support for this gender difference regarding I-E scores on the Locus of Control scale.

| Table 4.2 |
|---|---|---|---|
| **Means and Standard Deviations of I-E Scores According to Gender** |
| Gender | Mean | N  | Std. Deviation |
| Female | 10.97 | 37 | 3.708 |
| Male   | 11.90 | 40 | 3.410 |
According to this table, females in 10th grade American History class were found to be slightly more internal than males. The Pearson Correlation Coefficient for gender and I-E score was .128, which is not statistically significant at the 0.01 level (1 tailed). However, it does represent a slight relationship between gender and I-E scores. This relationship is illustrated in Figure 4.2.

Figure 4.2

Relationship Between Means of I-E Scores and Gender

In summary, according to the statistical analysis, a positive correlation does exist between academic achievement and I-E scores. Therefore, the alternative hypothesis is supported because high internal I-E scores correlate with high class placement. The research found a slight relationship between gender and I-E scores, but not at a significant level.
Chapter Five: Summary and Conclusions

Summary:

This study examined the relationship between Locus of Control and academic achievement, and discussed the possibility of gender differences. Past research indicated a positive correlation relationship between Locus of Control and academic achievement. Overall, the research regarding gender found males to be more internal than females. This study attempted to find support for the hypothesis, were a positive relationship does exist between Locus of Control and academic achievement.

The subjects in this study were 77 tenth grade American History students, from a large, ethnically and racially diverse, middle class region in Southern New Jersey. The students had been placed in three different class levels, Advanced Placement, Honors, and College Prep, according to academic achievement the prior year. The Rotter's Internal-External scale, a commonly used measure of Locus of Control, was administered to all the subjects during History class. The I-E scores obtained were then separately correlated with academic achievement, based on class level, and gender.

According to the statistical analysis, Locus of Control is positively correlated to academic achievement, with a Pearson Correlation Coefficient of .387. The one-way ANOVA computed on I-E scores also indicated significant differences in I-E scores between class levels. Therefore, individual Locus of Control does relate to individual academic achievement. According to the gender data, females were slightly more internal than males, however a level of significance was not found. These findings contradict with
the research reviewed earlier. The reason for this contradiction is not known. However, the constant changes in gender roles may be an influence. A study examining gender differences is an interesting topic to consider for future research. Overall, this study collaborates with previous research by providing support for the positive relationship between Locus of Control and Academic Achievement.

Conclusions:

A significant, positive correlation relationship was found between internal Locus of Control and academic achievement. Regarding gender, the study found a slight gender difference, with females being slightly more internal. However, the correlation was not found to be statistically significant. The study does support the hypothesis and the findings of past research by finding evidence for a positive correlation relationship between Locus of Control and academic achievement in adolescent students.

Discussion:

According to Rotter’s theory, individuals with internal Locus of Control believe that rewards are a result of their own behavior, so are motivated to continue the behavior. Individuals with external Locus of Control believe rewards occur randomly as a product of the external world. These individuals do not see rewards as a product of their own behavior, so are not motivated to continue the behavior.

In terms of academic achievement, it seems logical that individuals with internal Locus of Control achieve more academically than individuals with external Locus of Control. For example, an internal student, who studies hard and does well on a test, will attribute the success to own actions. This student will then continue to study hard, because an expectation to succeed in the future is established. Moreover, the individual
feels a positive emotional response of pride for the successes, which strengthens the expectation and the motivation. On the other hand, an external student may study and do well on a test, but may believe the success is due to an easy test, or luck, or a variety of other factors. This student does not attribute success to own actions, and so may not consistently study. Therefore, the more internal the perspective, the greater the expectation, and the stronger the motivation to achieve.

In regards to gender, it is not surprising that significant gender differences were not found. However, it was interesting that females were found to be slightly more internal than males, which contradicts with the past research. The current study did examine students at time in society where gender roles are being replaced by gender equality. In society today, it make sense that men and women are equally driven and perspectives of Locus of Control are similar in nature. If one is to consider the “feminist perspective”, one could even assume that females today feel greater control over their own destines than their male counterparts, as a way to compensate for the traditional female roles of the past.

**Implications for Future Research:**

When examining the design of this study, there are a few changes that would make a future study more effective. First, class placement (in the three levels) was not an accurate measure of academic achievement, and the range in achievement was limited. In the future, it would be beneficial to use GPA values, or achievement tests scores, as they are a more accurate measure and provide a larger range of academic achievement. Secondly, the sample was limited in size and diversity, which limits the implications of the results, when applied to the general population. Lastly, the role of gender was limited
as well, because it was identified more by sex category then gender characteristics.

Scores on a gender-identity scale would be interesting to compare with Locus of Control scores because a range of scores would be compared. For future research, it would be interesting to examine gender and Locus of Control using a continuum scale for both variables. It would also be interesting to examine subjects ranging in age, because gender roles have changed over time.
References


