

DOCUMENT RESUME

ED 353 344

TM 019 432

AUTHOR Martin, Janice E.; And Others  
 TITLE The Effects of Internal-External Locus of Control and Selected Demographic Variables on Rational-Irrational Beliefs.  
 PUB DATE Nov 92  
 NOTE 22p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Knoxville, TN, November 11-13, 1992).  
 PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)  
 EDRS PRICE MF01/PC01 Plus Postage.  
 DESCRIPTORS \*Adults; Age Differences; \*Beliefs; Comparative Testing; \*Demography; \*Employee Attitudes; Employees; Extraversion Introversion; Human Services; \*Locus of Control; Personality Measures; Racial Differences; Sex Differences; State Programs  
 IDENTIFIERS Internality Externality; \*Irrationality; \*Rationality

ABSTRACT

This study evaluated whether or not locus of control mediates rational-irrational beliefs. Data were generated investigating the impact of an internal-external orientation and selected demographic variables (age, race, gender, education, and occupation) on rational-irrational beliefs. Independent variables were locus of control and demographic characteristics, and the dependent variable was beliefs. Data were collected by administering the Internal-External Locus of Control Scale and the Irrational Beliefs Test to 105 state human service agency employees (81 internals and 24 externals). A one-way analysis of variance uncovered significant differences in internal and external females. In addition, there were significant differences in beliefs between internal and external subjects at different educational levels. Results support the view that internally oriented individuals maintain more rational beliefs than do externally oriented people. Nine tables present study data. (SLD)

\*\*\*\*\*  
 \* Reproductions supplied by EDRS are the best that can be made \*  
 \* from the original document. \*  
 \*\*\*\*\*

ED353344

U.S. DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

L. QUINN HEAD

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

THE EFFECTS OF INTERNAL-EXTERNAL  
LOCUS OF CONTROL AND SELECTED DEMOGRAPHIC  
VARIABLES ON RATIONAL-IRRATIONAL BELIEFS

Janice E. Martin  
University of Alabama

L. Quinn Head  
Jacksonville State University

Jimmy D. Lindsey  
Southern University

Presented at the Annual Meeting of the  
Mid-South Educational Research Association

Knoxville, Tennessee  
November 12, 1992

11019432

## ABSTRACT

Commonalities exist between social leaning and cognitive behavior theories. Yet, there is a dearth of supportive empirical evidence.

Data were generated investigating an internal-external orientation and selected demographic variables (i.e. age, race, gender, education, and occupation) on rational-irrational beliefs. Independent variables were locus of control and demographic characteristics; the dependent variable was beliefs. Data were collected through administering the Internal-External Locus of Control Scale and the Irrational Beliefs Test (IBT) to state human service agency employees (n=105). Kruskal-Wallis one-way analysis of variance was the statistical procedure used to analyze the data. When statistical significance ( $p < .05$ ) was established, the Mann-Whitney U test was the follow-up procedure.

The following results occurred: (1) significant differences in beliefs between internal and external females were obtained and (2) significant differences in beliefs between internal and external subjects were also found at different educational levels.

Although no differences in beliefs between locus of control and age, race, or occupation were obtained, the aforesaid results provided some support that internally oriented individuals maintain more rational beliefs than externally oriented people (e.g. subjects completing graduate school held more rational beliefs than did subjects with baccalaureate degrees).

## INTRODUCTION

Theoretical commonalities exist between social learning theory (Rotter, 1960), especially regarding the locus of control construct and the cognitive-behavioral underpinnings of rational-emotive therapy (Ellis & Grieger, 1977). Major areas of consistency between these two psychological frames of reference include the impact of perceptions such as one's perceived ability to influence the outcomes of life events and the interpretations of reality in shaping an individual's behavior.

Even though Martin, Head and Lindsey (1991) reported data supporting various theoretical commonalities among the aforesaid orientations (i.e. internal locus of control subjects exhibited more rational beliefs and external locus of control subjects maintained more irrational beliefs) a dearth of empirical evidence exists. Thus, this research is a sequel to the aforementioned study attempting to add to the body of knowledge pertaining to locus of control and beliefs regarding the following demographic variables: age, race, gender, education, and occupation

## METHOD

The Internal-External Locus of Control Scale (I-E Scale) (Rotter, 1966) measured the internal-external locus of control construct. This self-report, "forced-choice" inventory consists of 29 statements presented in a true-false format including six filler items. Scores can range from 0 to 23 in which low scores reflect an internal orientation and high scores reflect an external orientation (Higgins, Moracco, & Danford, 1981). In this investigation, low scores (i.e. 11 or lower) exhibited fewer external responses and high scores (i.e. 12 or higher) exhibited more external responses.

Rotter (1966) reported moderately high internal consistency coefficient value ranging from .65 to .79 with several sampling groups. Test-retest reliability as reported by Husa (1982) ranged from .49 to .83. Split-half and Kuder-Richardson reliability for total scores clustered around .70 (Anastasi, 1982).

Correlations (i.e. .55 to .61) between the Internal-External Locus of Control Scale and other methods assessing the locus of control construct such as story completion and questionnaires provide empirical support of its convergent validity (Rotter, 1966). Low correlations between this scale and instruments measuring social desirability (e.g. - .12 to - .41) and intelligence (e.g. -.22 to .03) provide supportive evidence for its discriminant validity. Additional investigations (Hersch & Scheibe, 1967, Harrow & Ferrante, 1969; Joe, 1971) repeated Rotter's findings. Thus subsequent data were generated supporting this scale's construct validation.

The rationality construct developed within Ellis' (1962) 10 core irrational beliefs' framework was measured by the Irrational Beliefs Tests (IBT) (Jones, 1968). This instrument, also a self-report inventory consists of 100 items in which 10 statements assess each of the 10 irrational-beliefs.

Jones (1968) reported cross validation of the IBT's construct validity ranging from .56 to .82 with a mean of .70. Homogeneous reliability coefficient values were obtained for this instrument ranging from .66 to .80 with a mean of .74. Test-retest reliability were .92 and ranged from .68 to .87 for IBT full-scale and subscales, respectively. Trexler and Karst (1972 and 1973) as well as Lohr and Bonge (1981) reported similar reliability findings.

Data were generated by administering the aforementioned instruments to state and local human service agency employees (n=105). Subclassifications of the same demographic groupings were then combined within the internal as well as external locus of control categories in order to prepare the data for statistical analyses (see Table 1).

The Kruskal-Wallis one way analysis of variance procedure was used to analyze the data. When statistical significance ( $p < .05$ ) for this nonparametric technique was obtained the Mann-Whitney U Test was employed as a follow-up procedure. Internal-External locus of control and selected demographic variables (i.e. age, race, gender, education, and occupation) were the independent variables. Scores from the IBT were utilized as the dependent variable.

The following five null hypotheses were tested.

Null Hypothesis I:

No significant differences in beliefs exist among internally or externally oriented subjects in different age categories.

Null Hypothesis II:

No significant differences in beliefs exist among internally or externally oriented subjects in different racial categories.

Null Hypothesis III:

No significant differences in beliefs exist among internally or externally oriented subjects in different gender categories.

Null Hypothesis IV:

No significant differences in beliefs exist among internally or externally oriented subjects in different educational categories.

Table 1

Locus of Control Categories and Demographic Subcategories

Locus of Control Category	Demographic Category
Internal	Age
	42 - 75
	37 - 41
	32 - 36
External	22 - 31
	42 - 75
	37 - 41
	32 - 36
Internal	Race
	White
	Non-White
	External
Internal	White
	Non-White
	Gender
	Male
External	Female
	Male
	Female
	Education
Internal	Graduate Degree
	Some Graduate School

Locus of Control Category	Demographic Category
External	Baccalaureate Degree Some College High School Diploma Graduate Degree Some Graduate School Baccalaureate Degree Some College High School Diploma
Internal	Occupation
External	Administrator Professional Non-Professional Administrator Professional Non-Professional

### Null Hypothesis V:

No significant differences in beliefs exists among internally or externally oriented subjects in different occupational categories.

## RESULTS

The following results were obtained from analysis of data by using statistical programs from the Statistical package for Social Science (SPSS).

Since the homogeneity of cell variance assumption was violated (see Table II) for hypotheses I through V as indicated by Hartley's F-max test the two-way-analysis of variance results were not reviewed. Thus, Kruskal-Wallis, a non-parametric procedure, was selected for testing each null hypothesis.

### Null Hypothesis I

The results of the Kruskal-Wallis one-way analysis of variance procedure produced a finding of  $\chi^2 = 12.69$  ( $p = .08$ ) (Table III). Thus, there is insufficient evidence to reject this null hypothesis at the 95% level of confidence. In this investigation it is appropriate to conclude there is no difference in beliefs among internally or externally oriented subject varying in age.

### Null Hypothesis II

Using the Kruskal-Wallis procedure a result of  $\chi^2 = 5.14$  ( $p = .162$ ) (Table IV) was obtained. Therefore no significant differences among locus of control and race were obtained at the .05 rejection level with regard to rational- irrational beliefs.

### Null Hypothesis III

Based on the analysis of data by using the Kruskal-Wallis procedure an outcome of  $\chi^2 = 9.81$  ( $p = .02$ ) (Table V) occurred. Thus, this null hypothesis was rejected at the .05 level which indicated that at least one of the four gender groups differed significantly from one or more of the other gender groups regarding rational-irrational beliefs.

In order to determine which gender group or groups differed significantly from the other groups, the Mann-Whitney U test was used as the follow-up procedure. Since the overall or experiment-wise error rate ( $\alpha = .05$ ) is inflated by each individual multiple comparison (Glass & Stanley, 1970), a hypothesis-wise error was calculated at  $\alpha = .008$ . Thus, it is appropriate to conclude that internally oriented females exhibited more rational beliefs than externally oriented females who exhibited more irrational beliefs (Table VI).



Table II

Test for Homogeneity of Cell Variances

Hartley's F-max

---

Hypothesis No.	Demographic Variables	DF	Critical F-max*	Calculated F-max
I	Age	33,8	3.12	5.30
II	Race	71,4	1.96	224.90
III	Gender	48,4	2.61	2.97
IV	Education	24,10	4.37	1087.12
V	Occupation	30,6	2.91	2.98

---

\*p < .05

Table III

Kruskal - Wallis Procedure

IBT Scores by Locus of Control and Age

Locus of Control Category	Age Groups	$\bar{X}$	$s$	$n$	Mean Ranks
Internal	42 - 75	287.29	25.29	34	48.57
	37 - 41	286.93	24.65	15	51.23
	32 - 36	276.06	31.21	17	40.24
	22 - 31	296.13	26.06	15	61.60
External	42 - 75	284.00	20.43	7	47.07
	37 - 41	326.50	33.97	5	85.63
	32 - 36	308.00	41.24	6	61.50
	22 - 31	302.43	17.91	7	70.86

$\chi^2 = 12.69$

$p = .08$

Table IV

Kruskal-Wallis Procedure

IBT Scores by Locus of Control and Race

Locus of Control Category	Racial Group	$\bar{X}$	$s$	$n$	Mean Rank
Internal	White	286.83	27.48	72	49.99
	Non-White	283.89	23.17	9	47.90
External	White	302.00	31.78	22	62.16
	Non-White	307.50	2.12	2	84.75

$\chi^2 = 5.14$

$p = .162$

Table V

Kruskal-Wallis Procedure

IBT Scores by Locus of Control and Gender

Locus of Control Category	Gender Group	$\bar{X}$	$s$	$n$	Mean Ranks
Internal	Male	283.66	32.96	32	49.09
	Female	288.37	22.30	49	50.14
External	Male	283.00	19.12	9	44.89
	Female	314.13	30.35	15	75.53

$\chi^2 = 9.81$

$p = .02$

Table VI

Mann-Whitney U Test

Internal or External Gender Groups

Groups	1	2	3	4
1. Internal Males	--	.8166	.2048	.0141
2. Internal Females	--	--	.5475	.0023*
3. External Males	--	--	--	.0216
4. External Females	--	--	--	--

\* $\alpha < .008$

#### Null Hypothesis IV

Since a finding of  $\chi^2 = 24.11$  ( $p = .004$ ) (Table VII) was obtained by using the Kruskal-Wallis procedure, this null hypothesis was rejected. At least one significant difference exists regarding rational-irrational beliefs among the 10 educational groups at the 95% level of confidence.

To determine which educational group or groups differed from the other groups, the Mann-Whitney U test was employed as the follow-up procedure. Since each individual multiple comparison inflates the overall or experiment-wise error rate ( $\alpha = .05$ ), the hypothesis-wise error was calculated to be  $\alpha = .001$ . Thus, it is appropriate to conclude internally oriented subject with graduate degrees exhibited more rational beliefs in contrast to externally oriented subjects with baccalaureate degrees who exhibited more irrational beliefs (Table VIII).

#### Null Hypothesis V

A finding of  $\chi^2 = 5.88$  ( $p = .318$ ) (Table IX) was obtained by using the Kruskal-Wallis procedure. Thus, there was not sufficient evidence to reject this null hypothesis at the 95% level of confidence with regard to rational-irrational beliefs among locus of control and occupation.

### DISCUSSION

Since statistically significant differences ( $p < .05$ ) only were obtained between internally and externally oriented female subjects, the data support that the locus of control construct mediates rational-irrational beliefs for females but not for males. Thus, the anticipated gender differences in beliefs between male and female subjects were not established in this investigation. Yet, these results provided some support for anticipated differences between internally and externally oriented subjects regarding irrational beliefs (Cash, 1984; Martin et al., 1976; Thyer & Papsdorf, 1981; Wright & Pihl, 1981).

As anticipated from prevailing literature, subjects with a higher educational level (i.e. graduate school completion) held more rational beliefs than did subjects with a lower educational level (i.e. baccalaureate degree obtainment). This research was not consistent with prior studies for the following reasons: (1) no significant differences ( $p > .05$ ) were obtained between the lowest educational level (high school completion) and the highest educational level (i.e. graduate school completion) and (2) other researchers (Hendricks et al., 1984; Lefcourt, 1976) support the conclusion that individuals with less education were more externally oriented and individuals with more education were more internally oriented. Additionally no support was obtained in this research that age, race and occupation interact with the locus of control construct regarding the effect on beliefs.

Table VII

Kruskal -Wallis ProcedureIBT Scores by Locus of Control and Educational Level

I-E Category Group No.	Educational Level	$\bar{X}$	$s$	$n$	Mean Ranks
Internal					
1	Graduate Degree	275.00	23.14	25	35.70
2	Some Graduate School	278.67	26.19	12	39.96
3	Baccalaureate Degree	293.35	32.97	17	59.82
4	Some College	297.72	24.80	18	62.03
5	High School Diploma	293.56	16.50	9	58.06
External					
6	Graduate Degree	290.00	12.82	7	54.36
7	Some Graduate School	273.00	24.43	1	24.00
8	Baccalaureate Degree	315.92	32.82	12	76.75
9	Some college	276.00	22.61	3	37.83
10	High School Diploma	337.00	0.00	1	98.00

$$\chi^2 = 24.11$$

$$p = .004$$

Table VIII

Mann-Whitney UTest for Internal or External Educational Groups

Group	1	2	3	4	5	6	7	8	9	10
1	--	.6848	.0108	.0048	.0422	.1053	.9468	.0007*	.8818	.0953
2	--	--	.0841	.0465	.1353	.2045	.8934	.0153	.9424	.1083
3	--	--	--	.7790	.7057	.5045	.1481	.0628	.3144	.2100
4	--	--	--	--	.7187	.6495	.2349	.1498	.1746	.1440
5	--	--	--	--	--	.7102	.1161	.1096	.3083	.1161
6	--	--	--	--	--	--	.1244	.0625	.5676	.1244
7	--	--	--	--	--	--	--	.1814	.6547	.3173
8	--	--	--	--	--	--	--	--	.0304	.5930
9	--	--	--	--	--	--	--	--	--	.1797
10	--	--	--	--	--	--	--	--	--	--

 $\alpha < .001$



Table IX

Kruskal-Wallis Procedure

IBT Scores by Locus of Control and Occupation

Locus of Control Category	Occupational Group	$\bar{X}$	$s$	$n$	Mean Ranks
Internal	Administrators	285.20	33.97	25	48.78
	Professionals	283.23	21.65	30	46.05
	Non-Professionals	291.54	25.04	26	54.88
External	Administrators	295.88	24.35	8	57.88
	Professionals	308.46	37.37	11	68.64
	Non-Professionals	299.80	24.40	5	63.80

$\chi^2 = 5.88$

$p = .318$

Since this study was limited to a small number of agency employees in a specific geographical area, demographic differences involving the locus of control construct and beliefs not found in this investigation may actually exist. Thus, it is recommended that replication of this research be conducted involving a larger, more heterogeneous population from which random samples are drawn. Since the locus of control orientation as well as the rational-irrational beliefs that a person maintains have important emotional and behavioral ramifications (Joe, 1971; Lefcourt, 1966, 1972, Hersch & Scheibe, 1967; Bettelheim, 1952; Elkins, 1961, Altmaier & Happ, 1985; Roth & Bootzin, 1974; Valine & Phillips, 1984; Ellis & Grieger, 1977) it is further recommended that the aforesaid variables including the demographic variables studied in this investigation be researched in regard to the therapist-client relationship.

## References

- Altamier, E. M., & Happ, D. A. (1985). Coping skills training's immunization effects against learned helplessness. Journal of Social and Clinical Psychology, 3 (2), 181-189.
- Anastasi, A. (1982). Psychological testing. NY: Macmillan Publishing Co., Inc.
- Bettelheim, B. (1952). Individual and mass behavior in extreme situations. In G. E. Swanson, T. M. Newcom, & E. L. Hartley (eds.), Readings in Social Psychology, (pp.33-43). NY: Holt.
- Cash, T. F. (1984). The Irrational Beliefs Test: Its relationship with cognitive-behavioral traits and depression. Journal of Clinical Psychology, 40 (6), 1299-1405.
- Elkins, S. (1961). Slavery and personality. In B. Kaplan (Ed.) (pp. 103-119). Studying personality crossculturally. NY: Harper & Row.
- Ellis, A. (1962). Reason and emotion in psychotherapy. Secaucus, NJ: Lyle Stewart
- Ellis, A., & Grieger, R. (1977). Handbook of rational-emotive therapy. NY: Springer Publishing Company.
- Glass, G. V., & Stanley, J. C. (1970). Statistical methods in education and psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Harrow, M., & Ferrante, A. (1969). Locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 33, 582-589.
- Hendricks, L. E., Montgomery, T. A., & Fullilove, R. E. (1984). Educational achievement and locus of control among black adolescent fathers. Journal of Negro Education, 53 (2), 182-188.
- Hersch, P. D., & Scheibe, K. E. (1967). Reliability and validity of internal-external control as a personality dimension. Journal of Consulting Psychology, 31, 609-613.
- Higgins, E., Moracco, J., & Danford, D. (1981). Effects of human relations training on education students. Journal of Education Research, 75 (1), 22-25.

- Husa, H. E. (1982). The effects of rational self-counseling on college students' locus of control. Journal of College Student Personnel, 23 (4), 304-307.
- Joe, V. C. (1971). Review of the internal-external control construct as a personality variable. Psychological Reports, 28, 619-640.
- Jones, R. G. (1968). A factored measure of Ellis' irrational belief systems with personality and maladjustment correlates. Wichita, KS: Test Systems International.
- Lefcourt, H. M. (1966). Internal versus external control of reinforcement: A review. Psychological Bulletin, 65, 206-220.
- Lefcourt, H. M. (1972). Recent developments in the study of locus of control. In B. A. Maher (Ed.), Progress in Experimental Personality Research (pp. 1-39). NY: Academic Press.
- Lefcourt, H. M. (1976). Locus of control: Current trends in theory and research. Hillsdale, NY: Erlbaum Associates.
- Lohr, J. M., & Bonge, D. (1981). The factorial validity of the Irrational Beliefs Test: A psychometric investigation. Cognitive Therapy and Research, 6, 225-230.
- Martin, J. E., Head, L. Q., Lindsey, J. D., Teller, H. E. The relationship among internal-external locus of control and rational-irrational beliefs. Paper presented at the Mid-South Educational Research Association Annual Meeting, Lexington, Kentucky, November, 1991.
- Martin, R. D., McDonald, C., & Shepel, L. F. (1976). Locus of control and two measures of irrational beliefs. Psychological Reports, 39, 307-310.
- Roth, S., & Bootzin, R. R. (1974). Effects of experimentally induced expectancies of external control: An investigation of learned helplessness, Journal of Personality and Social Psychology, 29 (2), 253-264.
- Rotter, J. B. (1960). Some implications of a social learning theory for the prediction of goal directed behavior from testing procedures. Psychological Review, 67, 301-316.

- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80, Whole No. 609.
- Thyer, B. A., & Papsdorf, J. D. (1981). Concurrent validity of the rational beliefs inventory. Psychological Reports, 48 (1), 255-258.
- Trexler, L. D., & Karst, T. O. (1972). Rational-emotive therapy, placebo, and no treatment effects on public speaking. Journal of Abnormal Psychology, 79, 60-67.
- Valine, W. J., & Philips, C. (1984). An examination of perceived helplessness in psychiatric patients. American Mental Health Counselors Association Journal, 6 (3), 134-143.
- Wright, P. G., & Pihl, R. G. (1981). Relationships between locus of control and irrational beliefs. Psychological Reports, 48 (1), 181-182.