

PERCEIVED LOCUS OF CONTROL AND BELIEFS
ABOUT ASTROLOGY*

Department of Psychiatry, University of Cincinnati; and Department of Psychology, University of Massachusetts, Amherst

RUTH H. SOSIS, BONNIE R. STRICKLAND,¹ AND WILLIAM E. HALEY

SUMMARY

The present study was an investigation of the relationship of general and specific IE beliefs to an interest in supernatural phenomena: namely, astrological data. Forty-five male and 88 female college student Ss were administered the Rotter and Levenson IE scales, the Marlowe-Crowne Social Desirability scale, and a questionnaire assessing belief and knowledge about astrology. External beliefs about chance or fate were positively related to belief and action-taking in astrological activities, while other measures of IE, including the Rotter scale and beliefs about control by Powerful Others, were not related to an interest in astrology. Females were significantly more likely than males to believe in and have knowledge about astrology. Results are interpreted to suggest that externals can be differentiated and identified as to the kinds of efforts they might make to enhance reinforcement.

A. INTRODUCTION

The concept of internal *versus* external control of reinforcement (IE) has become a familiar and popular one in the psychological literature (6, 9, 10, 11, 12). People who hold internal expectancies believe that the events that occur in their lives are a result of their own behavior and/or personal characteristics. Individuals with an external orientation perceive events to be a function of luck, chance, fate, powerful others, or powers beyond one's personal control and understanding. The Rotter IE scale (10, 11) has been the instrument of choice for assessing IE beliefs in most ongoing research with adults.

* Received in the Editorial Office, Provincetown, Massachusetts, on August 15, 1978. Copyright, 1980, by The Journal Press.

¹ Requests for reprints should be sent to the second author at the address shown at the end of this article.

Since the original IE formulations, Levenson (7, 8) has suggested that externality may be more multidimensional than internality. Within the Levenson system, internals are isomorphic with those identified by Rotter. However, externals are reclassified into two types. Type one externals are individuals who believe that reinforcements are controlled by powerful others. Type two externals believe that the world operates according to fate, chance, or luck. Levenson attempts to differentiate internals and Type one and Type two externals via an assessment instrument which has scales measuring internal control, control by powerful others, and belief that outcomes are controlled by chance and/or fate. If she is tapping two distinct external types, then these individuals should also be able to be classified according to certain behaviors, including instrumental acts which would lead to desired reinforcement. Several researchers have concluded that externals receive rewards with much the same frequency as internals (1, 3). Yet, little is known about how externals go about actively pursuing reinforcement. Cherulnik and Citrin (1) did find that externals displayed reactance when "bad luck" prevented them from receiving a desired reward. They speculate that externals try to maximize the probability that luck will be favorable and that the environment will yield up reinforcements to them.

With reference to Levenson's conception of two distinguishable types of externals, it is possible that both Type one and Type two individuals will use certain strategies or engage in certain actions to increase the likelihood of reinforcements but differentially according to their IE beliefs. For example, if Type one externals believe that life events are controlled by powerful others, they might attempt to wrest control from these others, at times, or might behave in appeasing or ingratiating ways to curry favor from powerful others. Type two externals may be resigned to suffer the vagaries of fate if they believe that life events are independent of their own actions and are a result of luck or chance, or they might take steps to enhance "good luck" in their lives. It would be expected that these Type two externals might carry good luck charms, practice superstitious rituals (such as refusing to walk under ladders), consult Ouija boards and fortune tellers, and make use of astrological horoscopes.

The present study is an investigation of one possible method that Type two externals might use to gain perceived control over life events: namely, the consulting of astrological data. It is expected that those persons who report themselves to perceive life events as a function of luck and/or chance will also be those individuals who make use of astrology to a greater degree

than persons with an internal locus of control orientation. Since there is some evidence that American women are more interested in astrology than men,² sex differences will be examined. Because response bias may enter into self-report data, social desirability responding is also assessed.

B. METHOD

1. Subjects

Data were collected from 88 female and 45 male college students who were given IE and astrological questionnaires in groups of 25-40 in the fall of 1976 at a large Northeastern university. Participation in the research was optional, but Ss received extra credit points in their psychology classes when they served in a study. Investigators were a male graduate student and a female undergraduate of approximately the same age (early twenties) who shared the task of administering the questionnaires.

2. Procedure

Ss signed a consent form advising them that their participation in the study was voluntary and that they could leave at any time. They were then asked to complete the Marlowe-Crowne Social Desirability scale (2), the Rotter IE scale (10), and the Levenson Internal-External Scale (8). An Astrology Questionnaire, designed for use in this study, was also administered.

The Astrology Questionnaire was developed to assess four aspects of the role of astrology in Ss' lives. The first, *belief in astrology*, was assessed by simply asking Ss to check "yes" or "no" to the question, "Do you believe in astrology?" A group of questions on an eight-point scale assessed *astrological action-taking*, such as Ss' reporting that they read their daily horoscopes and bought books on astrology. A third, 15-point scale assessed *knowledge of astrology* with questions asking Ss to give their astrological signs, as well as associated glyphs, symbols, and planets. Finally, Ss' belief that knowledge of astrology could be useful (*use of astrology*) was assessed with a six-point scale.

C. RESULTS

Initial analyses were carried out in order to explore the relationship between the different aspects of astrology, and sex differences in these

² Personal communication, Registrar, Free University of the University of Cincinnati, 1976. Indication that 10 times as many women as men register for courses in astrology.

beliefs and behaviors. Ss were categorized as "Believers" or "Nonbelievers" on the basis of the first part of the Astrology Questionnaire. A 2×2 (Sex by Belief) analysis of variance was computed for the measure of astrological action-taking. Females reported more action-taking than males ($F = 15.70, p < .001, df = 1/129$) as did "Believers" ($F = 52.73, p < .001, df = 1/129$).

Examination of the data further revealed that Ss who said they did not believe in astrology were not a homogeneous group. Some reported that, although "Nonbelievers," they did look at their horoscopes, had bought books on astrology, etc. In light of this, further analyses were computed with the "Nonbelievers" split into two groups on the basis of their action-taking scores. "Nonbelievers" who reported astrological action-taking were categorized as "Lookers," and "Nonbelievers" who did not report any astrological action-taking were denoted "Abstainers."

A 2×3 (Sex by Believer/Looker/Abstainer) analysis of variance was computed for all other dependent measures. "Believers" and "Lookers" were more knowledgeable about astrology than "Abstainers" ($F = 5.72, p < .004, df = 1/127$), and females were more knowledgeable than males ($F = 3.93, p < .05, df = 1/127$). "Believers" were also more likely to report that knowledge of astrology could be useful to them ($F = 19.59, p < .001, df = 2/127$).

Pearson's χ^2 test for association was computed for the number of Ss falling into the different categories of male "Believers" ($n = 4$), "Lookers" ($n = 13$), and "Abstainers" ($n = 28$); and female "Believers" ($n = 32$), "Lookers" ($n = 40$), and "Abstainers" ($n = 16$). Significant differences emerged ($\chi^2 = 27.77, p < .001, df = 2$): females were more likely to be either "Believers" or "Lookers," and males were more likely to be "Abstainers."

On the IE measures, there were no significant differences between males and females. As expected, however, scores on the Levenson Chance scale did differ as a function of the different astrology groups ($F = 6.43, p < .002, df = 2/127$). "Believers" had higher Chance scores than the other groups. No other IE measures differed among the astrology groups.

Correlation coefficients were calculated between all measures (see Table 1). Significant positive correlations were found between Levenson Chance scores and the scales measuring astrological action-taking and belief in the usefulness of astrology. Knowledge and action-taking scores were positively correlated with usefulness scores. Scores on the Marlowe-Crowne Social Desirability scale were significantly intercorrelated with the various IE measures, but not with the self-report of the various aspects of astrology.

TABLE 1
INTERCORRELATION AMONG VARIABLES

Variable	2	3	4	5	6	7	8
1. Levenson internality	-.38***	-.31***	-.52***	.08	-.10	-.14	.20*
2. Levenson chance		.54***	.57***	-.09	-.27*	.20*	-.29***
3. Levenson powerful others			.44***	-.15	.07	.05	-.23***
4. Rotter IE				-.06	.13	.10	-.31***
5. Astrology knowledge					.42***	.08	.02
6. Astrology action-taking						.47***	-.02
7. Usefulness of astrology							-.08
8. Marlowe-Crowne SDS							

* $p < .05$, two-tailed.

** $p < .01$, two-tailed.

*** $p < .001$, two-tailed.

D. DISCUSSION

Results support Levenson's conception of Type one and Type two externals as a valid one. With this more specific assessment of individuals as to I-E beliefs, the prediction of various methods of attempting to control reinforcements may be increased. Type two externals appear to pursue reinforcements actively by consulting astrological data, an act which suggests that they attempt to enhance control of their life outcomes. In addition, the strategy of using I-E scales measuring specific expectancies for control to increased prediction (4, 7) is supported, since only the Levenson Chance scale was found to be significantly related to astrology beliefs.

It is interesting to speculate on the process which maintains Type two externals' presumably superstitious beliefs. It may be that the "doses" of good luck these individuals gain from their star-gazing are just enough to give them sufficient confidence to gain reinforcement through more conventional forms of effort. The contiguity of reinforcer and vague horoscopic injunctions may lead to an attribution of causality. It may also be that the elements of perceived systematic options provided by horoscopes is helpful. Suddenly there is a choice about how to live one's day—either in accord with or in opposition to horoscopic dictates—rather than random choice. Both Lefcourt (6) and Langer (5) have begun to explore the notion of "illusion control." Langer notes that several experiments have demonstrated that adults often perceive a contingent relationship between behavior and event even when

such a contingency is objectively absent. Factors such as familiarity with a process, perceived competition, active choice, etc., each of which may be totally unrelated to the presence or absence of a contingent relationship may have served as discriminative stimuli on past occasions and subsequently provide a perceived connection between behavior and outcomes. Holding an illusion of control may lead to increased efforts in one's behalf, thus providing a greater frequency of reinforcements than would sheer passivity merely on the basis of greater energy expended and a positive outlook. Such a self-fulfilling prophecy could generate increasingly greater, more positive, and possibly more varied efforts to affect outcomes. Studies of other "external" action-taking, such as buying lottery tickets and religious faith, may shed further light on individual's varied efforts to control life outcomes.

In the present study females were significantly more likely to believe in and know more about astrology than males. Males are probably not free of superstitious efforts to maximize reinforcement probability, as fans of professional sports know, but females were clearly better informed about astrological data. Belief in astrology may be an escape from recent pressures on females to achieve in academics and careers, represent a passive stance toward achievement, or, on the other hand, may represent a means whereby females who are feeling relatively powerless can attempt to grasp more control of their lives. An interest in astrology may also simply represent a sex-typed superstitious pastime. Males may also engage in some of the same behaviors designed to increase astrological knowledge but be less likely to admit interest. This explanation is not supported by the data in the present study, however, since the scales of the astrology questionnaire were not significantly correlated with the Marlowe-Crowne Social Desirability Scale. Thus, social desirability bias did not appear to be operating in relation to admission of astrological interest and knowledge.

REFERENCES

1. CHERULNIK, P. D., & CITRIN, N. M. Individual differences in psychological reactance: The interaction between locus of control and mode of elimination of freedom. *J. Personal. & Soc. Psychol.*, 1974, 29, 398-404.
2. CROWNE, D. P., & MARLOWE, D. A. A new scale of social desirability independent of psychopathology. *J. Consult. Psychol.*, 1960, 24, 349-354.
3. FORWARD, J. R., & WILLIAMS, J. R. Internal-external control and black militancy. *J. Soc. Issues*, 1970, 26, 75-92.
4. GURIN, P., GURIN, G., LAO, C., & BEATTIE, M. Internal-external control in the motivational dynamics of Negro youth. *J. Soc. Issues*, 1969, 25, 29-53.
5. LANGER, E. The illusion of control. *J. Personal. & Soc. Psychol.*, 1975, 32, 311-328.
6. LEFCOURT, H. Locus of Control: Current Trends in Theory and Research. Hillsdale, N. J.: Erlbaum, 1976.

7. LEVENSON, H. Distinctions within the concept of internal-external control: Development of a new scale. In Proceedings, 80th Annual Convention, APA, 1972, 7, 259-260 (summary).
8. LEVENSON, H., & MILLER, J. Multidimensional locus of control in socio-political activists of conservative and liberal ideologies. *J. Personal. & Soc. Psychol.*, 1976, 33, 199-208.
9. PHARES, E. J. Locus of Control in Personality. Morristown, N. J.: General Learning Press, 1976.
10. ROTTER, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychol. Monog.*, 1966, 80(1), Whole No. 609.
11. ———. Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *J. Consult. & Clin. Psychol.*, 1975, 43, 56-67.
12. STRICKLAND, B. R. Internal-external control of reinforcement. In T. Blass (Ed.), *Personality Variables and Social Behavior*. Hillsdale, N. J.: Erlbaum, 1977.

Bonnie R. Strickland

Department of Psychology

University of Massachusetts

Amherst, Massachusetts 01003