

LUCK IS ALIVE AND WELL IN NEW HAVEN: A SERENDIPITOUS FINDING ON PERCEIVED CONTROL OF REINFORCEMENT AFTER THE DRAFT LOTTERY

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A serendipitous finding supports Rotter's proposition that individual differences in generalized expectancy for internal versus external control of reinforcement depend upon the individual's history of reinforcement. The I-E scale was administered to a group of Yale undergraduates on the day following the draft lottery. Those who were 19 or older and were therefore affected by the lottery showed a greater expectancy for external control of reinforcement than a control group of subjects to whom the I-E scale was administered prior to the lottery ($p < .10$). A breakdown of experimental subjects into two groups—those who were favorably affected by the lottery and those who were not favorably affected by it—revealed that the former group showed significantly more "externality" than the latter ($p < .05$) and largely accounted for the greater externality of the experimental group as compared with controls.

Rotter (1966) proposed that people differ in their generalized expectancies for the locus of control of reinforcement, and developed the Internal-External Locus of Control scale (I-E scale) which, in view of the wide range of its behavioral correlates (Cardi, 1962; Gore & Rotter, 1963; Hamsher, Geller, & Rotter, 1968; Phares, 1965; Rotter & Mulry, 1965; Seaman, 1963; Seaman & Evans, 1962; Straits & Sechrest, 1963), has proved to be a valid discriminator of these individual differences in expectancy. Some individuals tend to locate the cause of reinforcing events in their own behavior and attributes (*internal* control), while others tend to locate the cause of such events in forces outside of themselves such as luck, fate, or the control of powerful others (*external* control).

According to Rotter, these stable individual differences are a product of differing reinforcement histories. This assumption seems quite reasonable and, indeed, it has been demonstrated that an individual's expectancy for the control of reinforcement in a *given* situation can be altered by variations in the reinforcement schedule—that is, the reinforcement "history" (Bennion, 1961; Blackman, 1962). It has also been shown that groups of individuals, who may be assumed to have

had different reinforcement histories, differ in their generalized expectancy for the internal versus external control of reinforcement (Battle & Rotter, 1963; Franklin, 1963; Graves, 1961).

While these findings are suggestive, the latter group is subject to a variety of alternative explanations, and they all provide at best only *indirect* evidence for Rotter's contention that an individual's generalized expectancy for the control of reinforcement derives from his reinforcement history. The lack of *direct* evidence is certainly not surprising in view of the problems—both practical and ethical—involved in substantially manipulating an individual's reinforcement history. However, the draft lottery has recently provided an excellent opportunity to observe the effects of such a manipulation.

Quite by chance Rotter's I-E scale was administered to a group of Yale undergraduates on the day following the draft lottery. It subsequently occurred to the experimenter that if any single event in an individual's reinforcement history could affect his relatively stable disposition to expect internal versus external control of reinforcement, the draft lottery could. In view of this possibility, the "reinforcement" which the lottery afforded subjects was ascertained, and comparisons were made among the I-E scale scores of those individuals who were unaffected by

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the lottery, those who were favorably affected, and those who were not favorably affected. Since these groups had been randomly determined, any differences among them could be due only to differences in the individuals' reinforcement histories—that is, differences in their lottery outcomes. It was anticipated that individuals' expectancy for *external* control of reinforcement would vary directly with the favorableness of their lottery outcome. This expectation was based on the assumption that the draft lottery would be more readily perceived as providing individuals with good luck than with bad luck. Prior to the lottery, most college students probably believed the odds were that they would have to serve in the armed forces after graduation unless they went to jail, left the country, or managed to secure a deferment until they reached age 26. Hence the lottery clearly brought good luck to individuals who drew numbers in the upper portion of the pool, for this meant that they would probably *not* have to serve in the army—a real change from their prelottery draft status. On the other hand, the lottery did not as clearly bring bad luck to individuals who drew numbers in the lower part of the pool, for their draft status remained relatively unchanged in comparison to their prelottery status. As before, they could expect to be drafted after graduation *unless* they went to jail, left the country, or secured a deferment until they reached age 26.²

METHOD

Subjects

Twenty-three male undergraduates from the introductory psychology course at Yale University volunteered to participate in the study for experimental credit. Of these, 15 were upperclassmen age 19 or over, and 8 were freshmen, age 18.

Procedure

Subjects recruited for a ½-hour experiment on "interpersonal perception" filled out the I-E scale (Rotter, 1966) on the day after the draft lottery was held. During the following week these subjects were contacted by the experimenter who asked them their age, birthday, and lottery number.

² At the time this study was conducted there was no serious movement toward abolishing those deferments which had been available to men prior to the lottery.

RESULTS

The subjects were divided into two groups: 8 freshmen, who were not affected by the draft lottery because they were under 19 years of age; and 15 upperclassmen, who were affected by the lottery. The mean I-E scale scores for these groups were 10.00 and 12.33, respectively. Although the freshmen and upperclassmen did not differ significantly from each other ($t = 1.18$, $df = 21$, $p > .20$), the upperclassmen showed slightly more externality than a control group of undergraduates ($\bar{x} = 10.14$, $n = 63$) who were tested about 20 months previously ($t = 1.68$, $df = 76$, $p < .10$), while the freshmen did not ($t < 1$).³ This effect is qualified by the results obtained when the upperclassmen were subdivided in terms of the number they drew in the lottery. The mean I-E scale score of subjects drawing numbers in the upper half of the draft pool—that is, those subjects who drew numbers 184–366 and were relatively "safe" from being drafted—was significantly higher than that of subjects drawing numbers in the lower half of the pool—that is, those subjects who drew numbers 1–183 and were relatively "vulnerable" to being drafted (15.50 versus 10.22; $t = 2.13$, $df = 13$, $p \approx .05$). Furthermore, subjects drawing a number in the upper half were significantly more external than both the freshmen ($t = 3.04$, $df = 12$, $p < .02$) and the controls ($t = 2.91$, $df = 67$, $p < .01$), while subjects drawing a number in the lower half did not differ significantly from either of these groups (both $ts < 1$).

The upperclassmen were further subdivided into those drawing numbers in the upper, middle, and lower thirds of the draft pool.⁴

³ Like the subjects in the present study, the control subjects were recruited from the introductory psychology course to serve in an experiment for credit toward their course requirement. As one would expect, the mean I-E scale score of freshmen in the control group (9.83) did not appreciably differ from that of the upperclassmen (10.31).

⁴ Since the mass media had popularized the notion that men in the lower third of the draft pool (Numbers 1–122) would definitely be called up for service, men in the middle third (Numbers 123–244) might or might not be called, while men in the upper third (Numbers 245–366) were "safe," it seemed reasonable to divide the sample into these three "natural" groups.

(\bar{X} s = 15.00, 10.20, and 11.80, respectively, $n = 5$). It can be seen from this breakdown that the greater externality obtained for subjects drawing lottery numbers in the upper half of the draft pool was largely due to those subjects who fell in the upper *third*. Despite the reduced sample size, this group differed significantly from both the freshmen ($t = 2.51$, $df = 11$, $p < .05$) and the controls ($t = 2.43$, $df = 66$, $p < .02$), while the other two groups did not (all t s < 1). Although these data suggest a curvilinear relationship between lottery outcome and "externality," neither a quadratic-trend test nor individual comparisons yielded significant effects. This was largely due to the small sample size which accompanied this "serendipitous" study, but it may also have been partly due to the extreme variance in the I-E scale scores among subjects whose lottery number fell in the middle third of the draft pool. The variance in this group was nearly four times as great as that in the other groups, and suggests a bimodal distribution of scores. Since the sample size was too small to demonstrate a significant difference in variances using standard methods, one can merely speculate on possible reasons for the apparent bimodality. In the meantime, one gross effect is clear—individuals who were most positively reinforced by the lottery exhibited the greatest generalized expectancy for external control of reinforcement—and this finding supports Rotter's proposition that such generalized expectancies are a product of the individual's reinforcement history.

REFERENCES

- BATTLE, E. S., & ROTTER, J. B. Children's feelings of personal control as related to social class and ethnic group. *Journal of Personality*, 1963, 31, 482-490.
- BENNION, R. C. Task, trial by trial score variability of internal versus external control of reinforcement. Unpublished doctoral dissertation, Ohio State University, 1961. Cited in J. B. Rotter, Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80(1, Whole No. 609). P. 7.
- BLACKMAN, S. Some factors affecting the perception of events as chance determined. *Journal of Psychology*, 1962, 54, 197-202.
- CARCI, M. An examination of internal versus external control in relation to academic failures. Unpublished master's thesis, Ohio State University, 1962. Cited in J. B. Rotter, Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80(1, Whole No. 609). P. 17.
- FRANKLIN, R. D. Youth's expectancies about internal versus external control of reinforcement related to N variables. Unpublished doctoral dissertation, Purdue University, 1963. Cited in J. B. Rotter, Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80(1, Whole No. 609). P. 17.
- GORE, P. M., & ROTTER, J. B. A personality correlate of social action. *Journal of Personality*, 1963, 31, 58-64.
- GRAVES, T. D. Time perspective and the deferred gratification pattern in a tri-ethnic community. Unpublished doctoral dissertation, University of Pennsylvania, 1961. Cited in J. B. Rotter, Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80(1, Whole No. 609). P. 24.
- HAMSHIER, J. T., GELLER, J. D., & ROTTER, J. B. Interpersonal trust, internal-external control, and the Warren Commission Report. *Journal of Personality and Social Psychology*, 1968, 9, 210-215.
- PHARES, E. J. Internal-external control as a determinant of amount of social influence exerted. *Journal of Personality and Social Psychology*, 1965, 2, 642-647.
- ROTTER, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80(1, Whole No. 609).
- ROTTER, J. B., & MURRY, R. C. Internal versus external control of reinforcement and decision time. *Journal of Personality and Social Psychology*, 1965, 2, 598-604.
- SEAMAN, M. Alienation and social learning in a reformatory. *American Journal of Sociology*, 1963, 69, 270-284.
- SEAMAN, M., & EVANS, J. W. Alienation and learning in a hospital setting. *American Sociological Review*, 1962, 27, 772-783.
- STRAITS, B. C., & SECHREST, I. Further support of some findings about characteristics of smokers and non-smokers. *Journal of Consulting Psychology*, 1963, 27, 282.

(Received December 24, 1969)