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GENERAL INCONGRUITY ADAPTION LEVEL (GIAL) AS A PREDICTOR OF RISK PREFERENCES IN A SIMULATED MANAGEMENT GAME

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ABSTRACT

This study examined the relationship between General Incongruity Adaption Level and risk preferences utilizing a simulated management game as the primary research instrument. Results indicated an inverse relationship in that subjects with high GIAL levels made more conservative decisions while low GIAL subjects made more risky decisions.

INTRODUCTION

General Incongruity Adaption Level (GIAL) has been advanced by Driver and Streufert [3] as a major determinant of behavioral responses to incongruent and ambiguous situations.

> The basic idea is that depending on previous experience with conflict, frustration, dissonance and other forms of imbalance individuals form expectations or adaption levels for general incongruity. A person from a predictable past would have a low GIAL; whereas someone from a very unstable past would have a high GIAL [4].

Recently, GIAL has been reported to be useful in predicting variations in risk preference under different degrees of environmental incongruity [6;7). Hunsaker found that individuals with high GIALs tended to engage in more risk-taking behavior than individuals with low GIALs in three out of four levels of environmental incongruency. The exception occurred under conditions of low environmental incongruency, when low GIAL individuals tended to take greater risks. However, only one of the four experimental conditions displayed a statistically significant difference in the risk preferences of high versus low GIAL individuals. According to Hunsaker [7], differences in GIAL level appear to influence risk preferences if all those concerned have very similar experiences immediately prior to encountering a risk taking situation.

PURPOSE OF THE STUDY

The purpose of the present study was to test the hypothesized relationship between GIAL level and risk preferences utilizing a simulated management game more typical of managerial decision making.

The research hypothesis was that high GIAL individuals would take greater risks than low GIAL individuals.

A basic feature of the study was to conduct the experiment with no real stakes involved, a common weakness in previous research, but also when real stakes were present in the decision making.

METHODOLOGY

Subjects

The subjects in this study were 88 senior business students enrolled in three sections of the Capstone Business Policy course at a large southwestern university. All students were administered the General Incongruity Adaption Level Self-Description Test III (GIAL-SD III) developed by Driver and Streufert [4]. The test purports to measure the exposure to, expectation for, and liking for incongruity by the subject in his past experiences. The GIAL test was selected to measure propensity to take risk due to its multidimensional nature and also because it relates more closely to the incongruency one finds in an uncertain decision-making environment. The GIAL test is a paper and pencil test consisting of 19 incomplete questions, each having four to eight responses for a total of 100 responses. Subjects rate each response on a five-point scale from very infrequently to frequently. The subjects then were classified into high and low categories based upon their test scores. A statistical test of the difference between high and low GIAL scores was performed. Table I presents the results of these tests which show a significant difference in all three sections.

Instrument

The primary research instrument utilized in this study was THE IMAGINIT MANAGEMENT GAME [2]. IMAGINIT is a complex, interactive, total enterprise game. A unique feature of IMAGINIT is the ability to identify a single, operational measure of objective risk in an uncertain environment.

TABLE 1
DIFFERENCES BETWEEN HIGH AND LOW GIAL SCORES

Section	High			Low			t
	n	M	SD	n	M	SD	
1	15	49.1	3.11	15	38.2	4.5	7.52*
2	14	50.4	4.5	14	35.9	4.6	8.10*
3	15	49.9	4.5	15	36.1	5.2	7.46*

*p<.001

The dependent variable in this study was the dollar amount per hour spent on fringe benefits which determines the probability of a labor strike in the IMAGINIT GAME. The decision of how much to spend must be made by each individual for each period. Thus, as are so many variables in the 'real" world, this single variable decision is made in a multi-variate context. A given individual may decide to spend more on fringe benefits in hopes of decreasing the likelihood of a labor strike but concomitantly will be increasing costs and reducing his operating margins. Thus, this decision can be made in the light of not only Costs and profits, but perhaps in relation to other game variables in allocating scarce resources.

Each individual starts with the same fringe benefit rate and an initial .05 strike probability. Future probabilities of a strike are a function of what an individual decides to spend on fringe benefits versus what the other individuals acting as separate firms in the industry spend on fringe benefits. The exact probability is determined by a sub-routine [1] which calculates an average industry response index from which each firms response index is compared to determine the firm's probability of a strike. This probability is included on each firm's policy statement after each play. A given individual knows only his own firm's probability and not that of the other firms and can only surmise what is happening to the other firms. Thus, for each decision, every individual is uncertain of the outcome of a fringe benefit decision.

Procedures

The investigation consisted of two studies. The first study more closely approximated conditions of ignorance since the subjects played a practice version consisting of three decisions (years) of the IMAGINIT MANAGEMENT GAME. This represented a training session whereby students learned the mechanics of the game with no real stakes involved since their performance was not evaluated for part of their course grade. Prior to the first study, all of the subjects were tested and retested on their knowledge of the game to help insure an equal understanding of the dependent variable, fringe benefit decisions, and other game mechanics. During the practice play, the probability of a labor strike was allowed to vary in normal game fashion. Observed strike probabilities remained very close to the initial five percent probability.

The second or primary study more closely approximated decision making under uncertainty with real stakes involved. Student performance during this "real" play was part of the final course grade. Although utilizing a different industry version of IMAGINIT, the dependent variable and other mechanics were the same. The amount spent on fringe benefits was collected during the first five weeks of play. All students faced the same, but increasing, probability of a labor strike (Table 2). The probability of a labor strike was controlled by the experimenter and was independent of the dollar amount actually spent on fringe benefits. This made possible an increasingly incongruent situation, identical for all subjects. Students were not aware of the fact that strike probabilities were the same for all players until after the experiment was completed.

TABLE 2
PROBABILITY OF A LABOR STRIKE
DURING PRIMARY STUDY

Year 1	.05
Year 2	.08
Year 3	.11
Year 4	.14
Year 5	.17

RESULTS

The hypothesis was that high GIAL subjects would spend less on fringe benefits, i.e., take a greater risk than low GIAL subjects. Table 3 presents the means, standard deviations, and t-statistics for the eight decision periods. There is no significant difference in year one with the initial strike probability of .05. For years two through five, high GIAL subjects actually spent more on fringe benefits. Spending more on fringe benefits would have been perceived to actually reduce the level of risk. Therefore, the hypothesis is rejected for years 3-5 at the .05 level and for year 2 at the .06 level of significance.

DISCUSSION

An interesting finding of the study is the fact that high GIAL subjects spent more on fringe benefits, a less risky decision, than the low GIAL subjects in the last four years of the primary study when real stakes were involved. It was hypothesized that the opposite would have occurred.

There are at least two possible explanations for this finding. First, it is possible that both high and low GIAL subjects perceived the situations (high environmental incongruity) to be more incongruent than their optimum incongruity levels. Thus both groups would compensate by inverse behavior. Low GIAL subjects would perceive risk as reducing incongruity, with the opposite holding true for the high GIAL subjects. The second explanation is adapted from Hunsaker [7, p. 182].

> High GIAL individuals also appear to react more rationally in response to variations in environmental incongruity by compensating for these changes via more or less risky decision strategies.

The findings in this study tend to support the premise that GIAL levels may be useful in predicting risk preferences of individuals in an incongruent, uncertain decision-making environment. The difficulty appears to be in predicting the directionality of those preferences. What is needed is a means of operationalizing specific incongruency levels which can be identified as optimal for both high and low GIAL individuals.

TABLE 3
DIFFERENCE BETWEEN FRINGE BENEFIT DECISIONS OF HIGH AND LOW GIAL INDIVIDUALS BY YEAR

Year	GIAL	Sample Size	Mean	Standard Deviation	T Statistic	Significance Level
Practice						
1	Low	44	51.11	3.83	.46	.644
	High	44	51.41	1.80		
2	Low	44	51.57	1.52	.99	.323
	High	44	51.95	1.70		
3	Low	44	51.73	1.68	.10	.919
	High	44	51.77	2.45		
Primary						
1	Low	44	20.66	1.26	.92	.359
	High	44	20.96	1.71		
2	Low	44	21.96	1.80	1.91	.060
	High	44	22.91	2.79		
3	Low	44	25.18	5.57	1.97	.052
	High	44	28.55	9.85		
4	Low	44	28.87	5.70	2.75	.007
	High	44	35.11	13.97		
5	Low	44	32.77	9.64	2.60	.011
	High	44	39.91	15.42		

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