

# Developments in Business Simulation & Experiential Exercises, Volume 15, 1988

## EXPERIMENTAL ANALYSES OF MAGNITUDE AND SOURCE OF STUDENTS' INEQUITABLE CLASSROOM PERCEPTIONS IN THREE REWARD CONDITIONS

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### ABSTRACT

This study indicates that students' fairness perceptions of a classroom social exchange are affected when the students' expectations of the classroom social exchange are violated by the instructor's choice of the grade assignment basis. Results of this study also provide evidence that specific professorial classroom practices are associated with students' fairness perceptions of the classroom social exchange. The present study indicates the greatest amount of change in the students' fairness perceptions occurred within those fairness perception concepts which were most closely associated with the manipulations conducted during the study. These fairness concepts were Grade Administration, Grade Level, Grade Rules, and Instructor Fairness. The study's analyses further indicate that students' perceptions of an unfair social exchange condition can be overcome by the development of conditions closer to those expected by the students in a classroom social exchange. The research suggests that classroom instructors should be aware of the impact of their behavior in developing perceived instructional atmospheres that can be perceived as unfair and which may result in student behaviors which are non-constructive with respect to the established pedagogical objectives of the course.

### INTRODUCTION

Impetus for this research developed from the need to study the fairness perception effects of altering reward allocations in a field setting. A classroom environment was selected as the field setting for this study for two reasons. First, inequity investigators have traditionally been reluctant to utilize the field study method because of the ethics of altering a subject's pay for research sake. Second, subjects in a field environment were accessible to the researchers, thus avoiding the ethics of permanently altering a subject's pay. Classroom circumstances can frequently cause instructors to alter course requirements during the term. These classroom alterations may be initiated by professorial preference or as a consequence of unforeseen problems. If such changes in course requirements affect the students' perceived fairness of the instructor, according to inequity theory (Adams, 1962, 1963a, 1963b, 1964, 1965), the students' classroom behavior may then subsequently also be affected. Behaviors that the student may adopt are interpreted by the present researchers as ranging from decreasing the efforts (inputs) expended on a particular academic class, including withdrawal from the class, to encouraging other students to not enroll in a class taught by a particular instructor.

The purpose of this study was to determine if the basis of assigning students' grades is associated with changes in students' perceptions of classroom fairness. An underlying assumption taken from the above discussion is that unfair

classroom social exchanges will lead to inequity perceptions and can possibly result in non-constructive reactionary student behaviors.

A second assumption of this study is that the students' initial class expectations are based upon the traditional student attitude that the course outline constitutes a "contract" to both parties of the classroom social exchange. Educators, therefore, should be cognizant of their potential to affect student attitudes and the resultant changes in student performance precipitated by unfulfilled student expectations.

### THE PROBLEM

Previous equity research has identified that inequity perceptions resulting from a social exchange can affect the level of effort and types of behaviors that the inequitably treated person will develop in subsequent social exchanges. Most laboratory studies which have analyzed the effects of reward allocations in a dyad or other form of small group have had a fixed reward available. A few studies, however, have analyzed the effects of varying the reward level available to the subjects. The first such study was conducted by Lane and Messe (1972). Results of this study indicate that, if the value of the available reward is congruent with an internal standard of fair pay, the subjects allocate the reward equally with Other(s) who have provided equal inputs. When the reward available is either substantially excessive or insufficient, then the subject (Person) gives proportionately more to himself.

Burgess and Neilson (1974) investigated the effects of exchange conditions and the selection process used to choose the preferred exchange alternative. Their analysis of the experiment indicates that subjects choose the most profitable exchange alternative regardless of how inequitable the exchange is to the parties involved.

Greenburg (1978) developed laboratory conditions in which the value of the reward controlled by Person and the value of the reward controlled by Other are both varied. Analysis of the study shows that, when Person did not expect a further exchange with Other, substantially more is kept by Person than is given to Other. When Person expects Other to possess an equal reward later, Person refrains from inequitable allocations except in the condition where the reward possessed by Other is of the highest value. In the highest value condition, a justifiable equity norm is adhered to by Person. Greenburg (1978:375) also found that if the reward possessed by Other is of the lowest value condition, "allocators dividing highly valuable rewards made very generous responses which they recognized as benefiting their co-worker at

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their own expense.” The conclusion drawn from this study is that Person is reluctant to take advantage of his/her favorable power position and instead exhibits an equitable type of behavior. The mixed results of the above three studies indicate that further research is required before definitive conclusions can be drawn concerning the effect of the reward value on the allocation norm chosen by Person.

This literature review found no evidence of a situation in which the students studied were actually participants in a classroom social exchange. For this reason, the present researchers determined inequity research should be extended to include an analysis of student perceptions and changes in the grade assignment basis.

The present research opportunity developed when unforeseen computer software incompatibility problems occurred, creating conditions making it impossible to utilize a simulation activity in a basic production/ operations management (P/OM) class. This activity had been intended to be a part of the course requirements for two sections of the P/OH course. The instructor decided, therefore, to develop an substitute activity to replace the 15 percent of the course grade originally assigned to the simulation exercise. The substitute activity selected by the instructor was a conventional literature abstract research project. The change in course requirements was viewed by the researchers as an opportune environment for the analysis of students’ inequity perceptions relative to the substitute course requirements and the basis for the assignment of activity grades. This incompatibility problem provided an opportunity for a laboratory study in a field environment while also avoiding the ethical question presented earlier.

### PROCEDURES

Eight concepts relevant to perceived inequity were constructed to serve as a basis for this research. Seven of the concepts were developed from the Organizational Fairness Questionnaire (OFQ) (Dittrich, 1979) and are defined below. The eighth concept, Instructor Fairness, was constructed as a grand mean of the seven OFQ concepts so that the overall effects could be analyzed.

#### Definitions

Each of the eight fairness concepts analyzed is identified below. Definitions applicable to this study are:

Grade Rules - rules for granting grades for assigned tasks/examinations relative to one’s peers

Grade Administration - instructor administration of rules for class points

Work Pace - instructor maintenance of a fair pace of class work

Grade Level - the level of points received for a task relative to other instructors with whom the student is familiar

Rules Administration - instructor maintenance of acceptable forms of general behavior in the classroom

Distribution of Assignments - instructor’s distribution of task assignments to students

Task Latitude - instructor latitude permitted students for planning and personal decision-making while completing assigned task

Instructor Fairness - an overall equity perception of the social exchanges which occur in a student/instructor relationship.

#### Methods

Data for the study were collected with a modified Organizational Fairness Questionnaire (OFQ) (Dittrich, 1979). The present researchers determined that only 35 of the 43 questions in the original OFQ were appropriate for use in a classroom environment. To reduce the possibility of the same answers being systematically given during each questionnaire administration, a randomly shuffled questionnaire was developed for each of the three administrations conducted during the data collection stages. A cover page attached to the initial questionnaire administered contained instructions about marking answers on a computer sheet and questions about five personal demographics of the 88 students present that day.

To begin the study, the lead researcher described the general conditions of the computer simulation failure and that if the respective class section so desired, the computer simulation points could be replaced with points for a conventional literature abstract project. After an opportunity to ask questions was concluded, the lead researcher asked the students to vote for acceptance of the substitute assignment. Once the respective class section approved acceptance, the instructor requested that the students also participate in collecting some data about the substitution of the literature abstract research assignment. The students were also informed that once the data collection process had begun there could not be any further questions until the process was completed. After allowing adequate time for questions, each of the following three conditions was developed and then a questionnaire administered after the development of each reward condition.

Unknown reward condition. The students were informed that the literature abstract assignment would replace the originally planned computer simulation. The assignment was to prepare five abstracts of journal articles on the topics assigned. No explanation was given of the report format nor of the basis for assigning the points on this substitute activity.

Merit reward condition. After completion of the first questionnaire administration, the students were informed that industry uses merit as a basis for employee rewards and, therefore, the point values of the substitute activity would be correlated with the individual student’s performance on the first exam. This exam had been scored and returned two weeks prior to the present study. The students were told that the point values for each acceptable literature abstract would be as follows:

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First Exam Grade	Value Per Abstract
A	10Points
B	8Points
C	6Points
D	4Points
F	2Points

Actual reward condition. Upon completion of the second questionnaire administration, the students were informed that the potential point values of the substitute activity would not be correlated with the first exam results as indicated in the Merit Reward Condition. Instead, the students were informed that each acceptable abstract would have a potential point value of 10, regardless of the student's score on the first exam. The students were also informed that the acceptability of each literature abstract would be based upon their following a required literature abstract format and meeting the project deadline which were announced at that point in the study.

Data collected with the three administered questionnaires were analyzed using the Statistical Analysis System (SAS). To accomplish the study's objective, matched t-tests were utilized to determine the existence of significant differences in the fairness perceptions of the eight fairness concepts relative to the three reward conditions being evaluated. A self-report question was included in the third questionnaire administered to the second class section to determine if any of the students were aware of the reward conditions prior to the start of the class period. Only one subject stated prior knowledge, prompting the researchers to remove the observation from the data set of 88 observations. T-tests were also utilized to determine if significant differences existed between the two class sections with regard to the eight fairness concepts and three reward conditions identified above. Section one was composed of 43 students, and section two was composed of 44 students.

### SUMMARY OF FINDINGS

Data analyses clearly indicate that the perceived fairness of the classroom social exchange is associated with different grade assignment bases. The analyses also indicated that the perceived fairness of the classroom social exchange is most closely related to the particular fairness concepts of concern to the subject. Further analyses found only three cases of significant differences existing among the 24 fairness concepts between the means of the two sections. An in-depth discussion of these findings is reported below.

#### Analysis of Fairness Concepts

Eight fairness concepts were investigated to accomplish the objective of this study and are shown as changes in concept scores in Table 1 and graphically in Figure 1. Matched t-test results (Table 1) indicate that the significance of the grade assignment basis in a classroom environment is associated with the perceived fairness of the classroom social exchange. Additionally, the analysis of the study's findings reveals that three groupings of significant differences between the fairness concepts and the grade assignment basis could be constricted. These three groupings of significance differences consist of (1) fairness concepts significantly different between all three reward conditions, (2) fairness concepts significantly different between the unknown

reward condition and the merit reward condition, also significantly different between the merit reward condition and the real reward condition, but not significantly different between the unknown reward condition and the real reward condition, and (3) fairness concepts not significantly different between any of the three reward conditions.

Significance group one. Work Pace and Task Latitude were the two fairness concepts showing significant differences between all three reward conditions studied. Analyses indicate that the perceived fairness of the Work Pace concept decreased between the Unknown Reward Condition and the Merit Reward Condition but increased between the Merit Reward Condition and the Actual Reward Condition as well as increasing between the Unknown Reward.

TABLE 1  
ANALYSIS OF CHANGES IN CONCEPT MEAN SCORES  
BETWEEN REWARD CONDITIONS

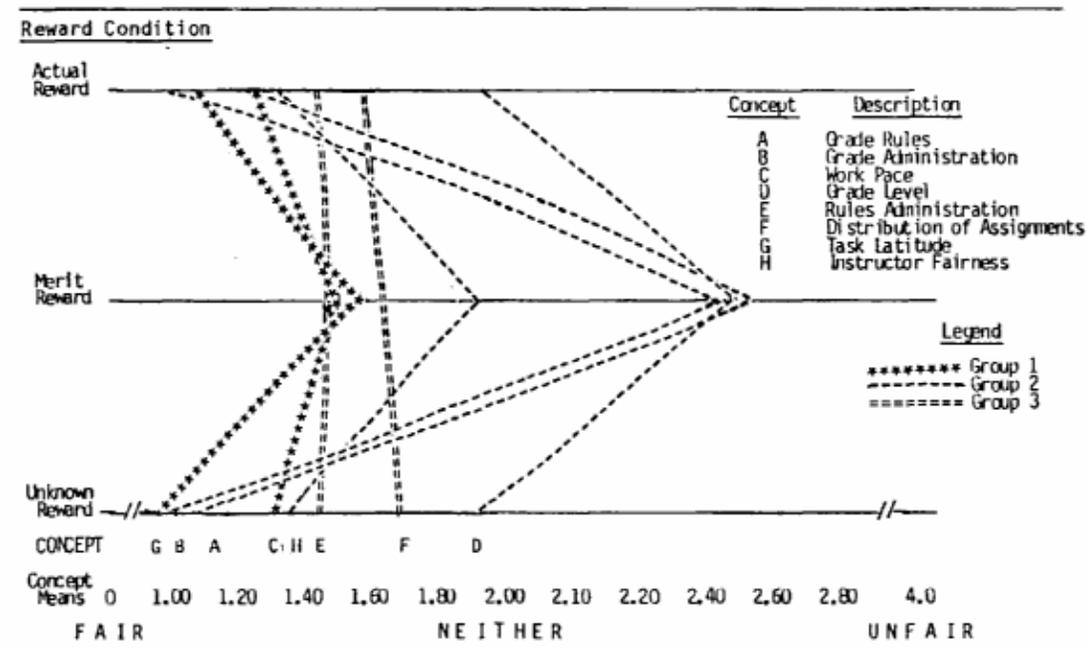
Concept Analyzed	Mean Score Difference	Reward Condition	P	Standard Deviation
Grade Rules	-1.3729	U/M	.0001*	.6722
	1.4345	M/R	.0001*	.7357
	-.0830	U/R	.1585	.5444
Grade Administration	-1.3609	U/M	.0001*	.7673
	1.4345	M/R	.0001*	.8320
	.0736	U/R	.2754	.6251
Work Pace	-.1322	U/M	.0424*	.5983
	.2375	M/R	.0001*	.4786
	.1054	U/R	.0438*	.4803
Grade Level	-.5315	U/M	.0001*	.7661
	.4684	M/R	.0001*	.7537
	-.0632	U/R	.2589	.5189
Distribution of Assignments	.0057	U/M	.9424	.5241
	.0661	M/R	.3201	.6115
	.0718	U/R	.2476	.5756
Rules Administration	-.0057	U/M	.9188	.5241
	.0057	M/R	.9086	.4653
	.0000	U/R	1.0000	.5498
Task Latitude	-.3736	U/M	.0001*	.5045
	.2778	M/R	.0001*	.5107
	-.3983	U/R	.0275*	.3983
Instructor Fairness	-.5387	U/M	.0001*	.3468
	.5400	M/R	.0001*	.3544
	.0012	U/R	.9582	.2220

\*Significant differences between the two reward conditions at a probability level less than .10

Condition and the Actual Reward Condition. Relative to the Task Latitude concept, perceived fairness decreased between the Unknown Reward Condition and the Merit Reward Condition, then returned to approximately the same fairness perception level of Unknown Reward Condition during the Actual Reward Condition.

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FIGURE 1  
CHANGES IN FAIRNESS CONCEPT PERCEPTIONS RELATIVE TO CHANGES IN REWARD CONDITIONS



Significance group two. Four fairness concepts were found to be significantly different between the Unknown Reward Condition and the Merit Reward Condition as well as the Merit Reward Condition and the Actual Reward Condition but were not significantly different between the Unknown Reward Condition and the Actual Reward Condition. These four fairness concepts were Instructor Fairness, Grade Rules, Grade Administration, and Grade Level. Analyses indicate that the perception of the Instructor Fairness concept decreased between the Unknown Reward Condition and the Merit Reward Condition and returned to within .001 of the Unknown Reward Condition mean between the Merit Reward Condition and the Actual Reward Condition. The perceived fairness of the Grade Rules and Grade Level concepts decreased between the Unknown Reward Condition and the Merit Reward Condition and increased between the Merit Reward Condition and the Actual Award Condition. Relative to the Grade Administration concept, perceived fairness decreased between the Unknown Reward Condition and the Merit Reward Condition, increased between the Merit Reward Condition and the Actual Award Condition, with the Actual Reward Condition being perceived as more fair than in the Unknown Reward Condition.

The two concepts of Distribution of Assignments and Rule Administration were shown to be not significantly different between any of the three conditions. The Distribution of Assignments concept was, however, perceived as more fair with each condition developed. Analyses indicate that the perceived fairness of the Rules Administration concept decreased between the Unknown Reward Condition and the Merit Reward Condition and returned to the Unknown Reward Condition mean during the Actual Reward Condition.

### Analysis of Section Differences

Analyses of the significant differences between the two class sections indicate that in only three of the twenty-four t-tests were significant differences found. These findings are thought to be isolated incidents of significant differences and not the results of information being passed from students in Section 1 to students in Section 2. As shown in Table 2, the Grade Administration concept of the Unknown Reward Condition means were 1.093 for Section 1 and 1.182 for Section 2 ( $p = .0927$ ). Means for the Grade Level concept of the Merit Reward Condition were 2.477 for Section 1 and 2.420 for Section 2 ( $p = .0807$ ). Instructor Fairness of the Merit Reward Condition produced means of 1.899 for Section 1 and 1.962 for Section 2 ( $p = .0167$ ).

### CONCLUSIONS AND RECOMMENDATIONS

Results of this study provide evidence that specific professorial, classroom practices are associated with students' fairness perceptions of the classroom social exchange. The four fairness concepts of the present study which indicated the greatest amount of change in the students' fairness perceptions occurred within those fairness perception concepts which were most closely associated with the manipulations conducted during the study. These fairness concepts were Grade Administration, Grade Level, Grade Rules, and Instructor Fairness.

The second significance group, Task Latitude and Work Pace, consisted of two fairness concepts which are less related to the grade assignment basis manipulations of the study. The changes in these fairness concepts appear to be associated with the format

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TABLE 2  
ANALYSIS OF SIGNIFICANT DIFFERENCES BETWEEN  
THE TWO CLASS SECTIONS STUDIED

Concept Analyzed	Concept Mean by Section (1/2)	Reward Condition	Probability of >F
Grade Rules	(1.142/1.194)	Unknown	.4004
	(2.475/2.606)	Merit	.2324
	(1.250/1.253)	Real	.1728
Grade Administration	(1.093/1.182)	Unknown	.0927*
	(2.465/2.532)	Merit	.4533
	(1.041/1.086)	Real	.4261
Work Pace	(1.263/1.451)	Unknown	.9818
	(1.434/1.545)	Merit	.9366
	(1.217/1.288)	Real	.4011
Grade Level	(1.924/1.909)	Unknown	.1699
	(2.477/2.420)	Merit	.0807*
	(1.971/1.987)	Real	.4567
Distribution of Assignments	(1.669/1.727)	Unknown	.5552
	(1.587/1.795)	Merit	.6110
	(1.570/1.682)	Real	.6368
Rules Administration	(1.430/1.511)	Unknown	.3123
	(1.494/1.460)	Merit	.7846
	(1.419/1.523)	Real	.2281
Task Latitude	(0.969/1.015)	Unknown	.6730
	(1.360/1.371)	Merit	.5901
	(1.031/1.144)	Real	.8679
Instructor Fairness	(1.356/1.427)	Unknown	.4575
	(1.899/1.962)	Merit	.0167*
	(1.357/1.432)	Real	.5095

\*Significant differences between the two class sections at a probability level less than .10

clarifications provided during the instructions of the Merit Reward and Real Reward conditions.

Least related to the manipulations and format clarifications of the study are the two fairness concepts found in the third significance group. The elements of the classroom social exchange relative to these two concepts, Rules Administration and Distribution of Assignments, did not produce a finding of significant differences in fairness perceptions throughout the manipulations of the reward conditions.

Evidence provided by this study clearly indicates that students' fairness perceptions of a classroom social exchange are affected when the students' expectations of the social exchange are violated by the instructor's choice of the grade assignment basis. A third conclusion of the study's analyses is that students' perceptions of an unfair exchange condition can be overcome by the development of conditions closer to those expected by the students in a classroom social exchange. Lastly, the present research suggests that classroom instructors should be aware of the impact of their behavior in developing perceived instructional atmospheres that can be perceived as unfair. Such perceptions may result in student behaviors which are non-constructive with respect to the established pedagogical objectives of the course.

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