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Executive Evaluation of Student Learning In The Looking Glass Simulation

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ABSTRACT

This study measures the effects of involving beginning management students in a management simulation, The Looking Glass. A control and experimental group of students were compared in a pre and posttest situation. They responded to the question, what does a manager in a mid to large organization do on a daily basis? Executives of mid to large organizations and professors evaluated the student data. Data analysis indicated significant gains in student knowledge between the two groups.

INTRODUCTION

The activities in which a manager is actually engaged on a daily basis are varied, and often fraught with incomplete information, ambiguity, conflicts, time limitations, and a sense of urgency (Mintzberg, 1975). A never ending number of Items and activities demand attention and must be prioritized, delegated and attended to through planning and decision making.

Management teaching must bring a realistic view of the managerial situation to the classroom so that students can obtain an idea of what a manager actually does on a daily basis and can begin to learn how to deal with complex managerial roles. Teaching requires more than just presenting the functional aspects and theories of management.

Practicing managers state that institutions of higher learning produce individuals who are intelligent in "book learning" -- that they can discuss concepts and theories but do not understand the complex balancing of the process of management and do not understand what managers really do. Richard K. Wagner and Robert J. Sternberg (1987), further indicate that It is not enough to know what a manager should do, but also that one must be competent to perform those functions. An important step toward competency, beyond the knowledge of vocabulary and theories, is for students to obtain an accurate view of managerial activities. This paper reports a rigorous study of the educational benefits of a complex managerial simulation. The experiential learning event, The Looking Glass is evaluated to determine if a student can learn what a manager does on a daily basis in a mid to large sized organization.

Experiential learning is a recognized methodology which can affect the learner in three ways: 1) the learner's cognitive structures are altered, 2) the learner's attitudes are modified, and 3) the learner's repertoire of behavioral skills is expanded (Johnson and Johnson, 1982). These outcomes are most likely to occur if learners are aware of content matter, attitudes, social environment, behavioral patterns and can develop introspective capabilities to gain an adequate knowledge of themselves.

To learn what a manager does, for example, the learner must develop a concept of the functions of management, a supporting vocabulary, an action theory concerning the process of management, an understanding of the nature of managerial work, a perception of actual activities of managers on a daily basis, and an assessment of self to determine whether s/he must develop additional skills.

Business simulations, such as the one used as the treatment for the experimental group in this paper, The Looking Glass, (Lombardo, McCall, DeVries, 1983) are designed to provide a realistic simulation of managerial activities which will affect the learner in the three ways mentioned above and, in addition, will assist students in becoming aware of what managers do on a daily basis. The business simulation, The Looking Glass is carefully designed to offer participants a "gut feel of managerial life, knowledge of managerial work--its pace, pressure, ambiguity, variety, and complexity" (Lombardo, et al, 1983).

LITERATURE REVIEW

Much has been written during the past decade about the relative worth of simulation games as educational tools. Brenenstuhl (1975) reports two reasons why business professors became interested in simulations: first, experiential learning offers a dynamic environment through which students can study behavioral aspects as they might occur in organizations and second, that active involvement enhances the learning process. Anderson, P.H., Lawton and Leigh (1988) describe the problem of evaluating student performance, and utilize Bloom's taxonomy to facilitate the evaluation process. This current study provides more realistic data by using executives as judges to evaluate student data.

A. Parasuraman (1980) acknowledges the enchantment of simulations to be the 'hands on' or participatory nature of the exercises. One concern of Parasuraman, however, is the need to identify the knowledge supposedly imparted through participation in the simulation. Gosenpud (1988) supports this assertion and suggests that the experiential method of teaching may be shown to be more effective if care is taken to design a test, which matches the goals of the learning experience. For this study the extent to which the simulation accomplishes the objective of providing greater realism about managerial work to students is measured by asking managerial practitioners to evaluate student learning from the exercise. Gentry, et al (1984) discusses the advantages and disadvantages of testing simulation games to investigate their merits as teaching devices. The advantages include controls to ensure internal and external validity, minimal costs, and the removal of sensitivity associated with real world activities. These advantages are apparent in this study.

In general, the literature suggests that experiential learning and simulation games can offer

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the Students an opportunity to observe, react and reflect 8B they might in real world situations. On the other hand, rigorous study to identify what is actually taught by simulations is difficult. The objective for this study, then, is to determine if there is true learning about the nature of managerial work expressed in student papers and as recognized by practicing executives from the real world environment.

TUE SIMULATION EXERCISE

The Looking Glass is a complex in-basket exercise, which creates a day in the lives of the top twenty managers of a mid-sized manufacturing corporation. Student participants are free to call meetings, write memos and take (or defer) decisions. Like any company, Looking Glass has its share of problems ranging from the trivial to the titanic. These total over a hundred, and participants may deal with them as they see fit. Problems and issues cover many areas, including finance, personnel, legal matters, production, sales, research and development, and safety. Examples include the following:

- *An opportunity to acquire a new plant,
- *A decision about what to do with a plant that has lost money for the last few years,
- *Supply shortages,
- *Labor unrest,
- *Production capacity limits,
- *Competition with foreign manufacturers, and
- *The need to fill a vacant plant manager position.

There are three divisions in Looking Glass, each of which has a different external environment. The Advanced Products Division exists in an unstable, highly volatile environment; the Commercial Class Division operates in a reasonably stable, predictable environment characterized by high-volume, low-margin products and well-established customer relations; and the Industrial Class Division exists in an environment containing both unstable and stable products Lombardo, et al (1983).

METHODOLOGY

The purpose of the research is to determine if the exercise, The Looking Glass provides learning to change students' perceptions toward a more realistic view of the day to day activities of a mid level manager in a large organization. A mid level manager was considered to be one who holds a position two to three positions above the supervisory level in an organization. A large organization, for purposes of this study, was defined as one which has more than 500 employees at the site.

The Looking Glass has been used in any educational settings; this research focuses on college students in a typical classroom setting, "playing" the situation over two lengthy classroom periods of three hours each. The instructors selected students for each of the simulation roles with an eye to maximizing the educational benefit for all.

The experimental group undertook the simulation, while the control group continued its usual classroom activities which were lecture, discussion and some small group role playing. Pre and post tests were given to both groups by asking them to write one

page response to "What does a manager in a mid to large organization do on a daily basis?" Practicing managers in mid to large organization were asked to evaluate the accuracy of the randomly mixed student papers. The class instructors also evaluated the student responses. A one way ANOVA with repeated measures was used to evaluate the results.

The Sample

Two management fundamentals classes were selected At this university. The total number of students in the sample is 58. There are 26 in the control group (Group A) and 32 students in the experimental group (Group B). The groups were demographically similar with ages from 22 to 36. They are juniors and seniors whose majors are predominantly business disciplines but also include arts and sciences, and education. Approximately 1/4 of these students are management majors.

Hypotheses

The following hypotheses (H) were established:

- H1 Students in group A will change perceptions of managerial work to conform with executive judgement to a greater extent than will students in group B.
- H2 There will be agreement among executive ratings (this hypothesis was established to investigate the interrater reliability).

Data Collection

Students in the two management classes were given an assignment to write 8 short description of their view of "a day in the life of a mid level manager in a mid to large organization." This was collected by the class instructors. Subsequently, one class, group A, (the experimental group) was provided "Looking Glass" for approximately six hours as an educational intervention to acquaint them with the managerial day. This exercise has been carefully developed and validated as an appropriate view of management (McCall and Lombardo, 1979). The second class, group B, (the control group) did not have the exercise, but instead continued their usual classroom activities for two weeks. Both classes were then asked to write for a second time their view of "a day in the life of a manager in a medium to large organization."

Judges to evaluate the students' papers were obtained from two sources, 1) outside executives who held managerial positions in medium to large organizations as defined in the study. The positions these judges held were a) the top level engineering (management) position in a federal agency, b) an upper level position in the main office of a large electric company, c) an upper level position in a large plant of a multinational industrial company, and d) an upper level position in a multinational energy company. The second source of judges was the university setting and here the two researchers, who were teaching the class, were also the evaluators of the student papers.

An evaluation form was designed as a guide in assessing the accuracy of the students' descriptions of managerial activities. The form provided the following definitions for scoring:

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1. This description is almost or totally inaccurate.
2. This description is generally inaccurate with some inaccuracies.
3. This description is somewhat more inaccurate than accurate.
6. This description is in between; about equally accurate and inaccurate.
5. This description is somewhat more accurate than inaccurate.
6. This description is generally accurate with some inaccuracies.
7. This description is almost or totally accurate.

The six judges scored the student descriptions of "a day in the life of a mid level manager in a large organization," blind; that is, all papers were coded by a student assistant, copied, and randomly mixed so no evaluator knew the origin of any description. The executives were asked to score the descriptions in accordance with the executive's view of the daily managerial life in their organization, as did the professors -

Data Analysis

The experimental design consisted of a one way ANOVA with repeated measures, that is, the before and after treatment conditions of the experimental and control group were evaluated by each of the six judges.

A preliminary review of the data indicated questionable results from one judge. For the control group, the mean differences by judge were the following with a plus value indicating a change from a less to a more accurate view of managerial activities. Scores for the control group were -.44, -.82, -.89, -.44, -2.78, .33 and for the experimental group 1.96, .76, .81, .83, -.69, 1.11. Ratings from judge 15 were noted to be greatly different from the other ratings. Further investigation indicated a likely misunderstanding of the rating scale so the set of scores from this judge was deleted from the analysis.

With the five judges, the average change in the control group was -.45 and in the experimental group +1.10 and a significant difference in the mean change in student perceptions was found ($F(1,37) 18.36, p < .01$). Thus there is a significant positive change for the students in the experimental group in contrast to the control group. The hypothesis that there was agreement among judges in scoring the same must be rejected ($F(4,148) 3.40, P < .01$). This lack of reliability would indicate a lack of uniformity in scoring student papers, which would cast doubt upon the test of the first hypothesis.

A further review of the mean differences by judges for the two groups revealed the following: Again, the mean differences for the control group were -.44, -.82, -.89, -.44 and .33 respectively and for the experimental group 1.96, .76, .81, .82, and 1.11 respectively. Judges one and five were the professors teaching the class who also evaluated the student papers. One of the professor's mean difference was out of line with the executive evaluators in the control group (.33). In the experimental group both professors mean scores indicated the greatest difference in the positive direction of greater student learning. In addition one professor's mean difference

score (1.96) was more than double all the outside executives' scores. It appeared the professors scores were considerably different from the executives.

Given this variation, the data were analyzed using the executives' scores only. The average mean difference for the three judges for the control group was -.70, indicating a possible decline in the accuracy of the control group's view of the managerial world. For the experimental group the average mean difference for the three judges was +.74 indicating an increasingly accurate view of managerial activities. With the three judges the hypothesis of agreement among the judges in scoring could not be rejected ($F(2,78) = .72, P < .49$). The executive judges were remarkably uniform in differences of before and after scores for the student papers.

In summary the five judges provide a significant difference in scores in the direction of more realism about the work of a manager in the experimental group. However, the five judges had significant differences in their scoring of the change in student papers. The two professors appeared to be causing this difference among evaluators and when they were removed no significant differences in the remaining executive evaluations were found. With the three remaining, highly consistent, executive evaluators a significant difference was again found in the changes of student scores in the control and experimental group.

DISCUSSION

There is a continuing need to bring information to the classroom which will provide aspiring managers realistic learning about managers' activities on a day to day basis. It is no longer sufficient for students to learn only the management vocabulary and theories; they must understand and translate those ideas and concepts into "bottom line" learning. This approach provides a "realistic job preview" for these aspiring managers, which will translate to greater job satisfaction for the practitioners and greater retention for the hiring organizations. The benefits of providing students with The Looking Glass simulation is threefold. Participants are better able to determine their fit in a managerial environment. Further they are better equipped to build upon their insights with additional business related coursework. Finally, they will be better able to translate their academic knowledge to the managerial environment.

An interesting conjecture, from the closeness of the executives' scores, is that there actually may be some uniformity in the world of executive managerial activities. The three executive evaluators were remarkably close in their evaluation of the student papers. Perhaps a day for these managers is similar interest of the process and acts undertaken. The hurry-up, disjointed, discontinuous, ambiguous environment found by Mintzberg may be accurate for these executives thus allowing them to evaluate the change (difference) in student papers rather uniformly according to the 7 item scale provided.

The professors' evaluations showed a marked improvement for the experimental group. It appears that the instructors, knowing The Looking Glass exercise were unconsciously keying in on the words, phrases and descriptions which might have come from the exercise. This would account for the much greater change in score for the professors in

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relationship to the managers who were not aware of the content of the experimental group treatment.

In total this study indicates that working executives can evaluate student papers describing managerial work consistently. It also indicates that students who participate in The Looking Glass will obtain improved knowledge about managerial work. This allows a conclusion that the exercise is useful in management education at the university level. The expectation is that improved realistic knowledge will allow students to better evaluate their potential interest in the field of management and to be more realistically prepared for acting in the managerial environment, which awaits thee.

This study is limited in that it concerns only a sample population of students in two beginning management classes at a southern university. The study is relatively small and is limited to results of three executive evaluators, since the faculty evaluators were obviously biased in their scoring. Further study should include a wider range of executives and should include academic evaluators who are not directly involved in the simulation activity. The results, which indicate learning for the experimental group, are based on a typical college-age population, and thus are limited to thee. The results of this study cannot be projected to other groups, in particular, groups of people who are already in the work or managerial environment.

An additional consideration is the method of evaluation. Although the three judges showed remarkable consistency, this needs to be demonstrated over a wide range of evaluators. Perhaps the results of a delphi or group consensus technique might be used to evaluate the student papers rather than evaluators acting independently.

Other factors involve the The Looking Glass exercise itself. This is an expensive educational intervention for a class in a business college. It is expensive both in terms of continuing procurement costs for the exercise, class/instructional time, and motivation of instructors. These costs preclude its use in many similar educational environments. In addition, The Looking Glass is a very sophisticated large group exercise. This means the results of this study cannot be directly related to other more commonly used small group experiential exercises in management classes.

CONCLUSIONS

The purpose of this study was to determine whether the simulation The Looking Glass used in a management fundamentals class would actually improve the students' knowledge of a manager's job. Two demographically similar classes at a southern university were used as experimental and control groups.

Examination of the data indicates that the executive evaluators found significant improvement in the knowledge of students about the managerial working environment in the experimental group when compared to the control group. It appears that The Looking Glass is an appropriate, though costly, exercise for management education in the university environment.

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