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THE USE OF THEORY POWER FOR INCREASED RESEARCH MOMENTUM IN BUSINESS SIMULATION AND EXPERIENTIAL EXERCISES RESEARCH

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ABSTRACT

The increased use of well developed theories to deduce greater numbers of ideas and more complete and consistent sets of variables for game and simulation research will more rapidly advance ABSEL members' research. Frederick Herzberg's Motivation-Hygiene Theory is used to demonstrate such an approach.

INTRODUCTION

One of the hypotheses that has received research attention in ABSEL is that "Simulations and experiential exercises are productive methods for causing student learning." Some observers of our research have commented on the necessarily embryonic and in some cases quasi-experimental nature of what has taken place so far [5, 4]. One useful method of helping to advance our research to a more rapid pace would be to make greater use of already existing, well developed theories in constructing our research hypotheses on experiential games and simulations. The use of theories in such a manner can be conceived of as "Theory Power." The use of theories has taken place in some of the research in ABSEL, but what I am suggesting, and will hope to demonstrate in this short paper, is the value and research benefit of a much more extensive use of well developed theories to provide increased momentum and power to our research efforts.

DEMONSTRATION

My current research interests center around the question, "What characteristics of experiential and simulation exercise design and administration will produce motivated behavior in students, that internal desire to participate, that very strong desire to learn from the exercise?" To demonstrate Theory Power, I will start with one of the many current motivational theories. The theory should have adequate development to be able to provide a wide range of closely integrated working propositions which will also be internally consistent. Frederick Herzberg's Motivation-Hygiene Theory [1] provides not only a well developed theory on human motivation and task characteristics, but additionally provides working propositions on motivated behavior in learning as a process of psychological growth, Figure 1. That part of the theory which deals with the design of jobs, called Orthodox Job Enrichment, is of particular interest because of the propositions available about the design of tasks which provide the opportunity for motivated behavior.

The Motivation-Hygiene Theory postulated that in those tasks or jobs in which people find their needs to psychologically grow met, that the Motivator Factors, Figure 2, will be present and that the job will contain many of the characteristics which Herzberg calls The Ingredients of a

Good Job, Figure 3 [2, 3J. These ingredients are the administrative means of producing the opportunities for people to perceive that the Motivator Factors are present in a task. Consequently, the Ingredients of a Good Job could provide the conceptual framework for deducing the characteristics of a task such as a simulation or experiential exercise that might provide opportunities for students to meet their motivational needs to learn and grow psychologically. If such deductions were correct, then one might be able to observe that students were gaining satisfaction from the learning task and that they did not have to be coaxed or forced to participate, but in fact had entered into the task with a level of enthusiasm that can only be generated from within. The Motivation-Hygiene Theory postulates that such behavior could occur under the circumstances in Figures 1 and 2. It appears then that the theory that I have selected to apply to my research question has the prerequisite postulates to handle the issues involved.

The next step then, after gaining an understanding of the major concepts and postulates of the theory such as those contained in Figures 1, 2, and 3, is to look further into the theory for an understanding of how these parts of the theory operate. What are the operating dynamics of the parts? This step is crucial! Without the understanding that comes from mastering this step, It is very likely that the application of the theory parts to a new situation will be cookbookish and lack any real insight or wisdom into the process. This crucial phase of theory application strongly suggests that for some of us, team or joint research with a mix of colleagues with the appropriate theory skills might be of great assistance in using Theory Power.

FIGURE 1 STEPS IN PSYCHOLOGICAL GROWTH

The sequential steps you follow as you learn and grow psychologically.

1. Data Accumulation - The simple gathering of facts.
2. Understanding Relationships - Comprehending the relationships and information in the data.
3. Problem Solving Ability to use given relationships to solve for omitted relationships.
4. Effectiveness in Ambiguity - Able to problem solve, experiment, and continue to progressively learn without given relationships.
5. Individualization - Becoming more self-dependent and less social dependent - more proactive, less dependent on a loop of Steps 1 and 2.

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6. Real Growth - Level of psychological growth when learning has become self-perpetuating - the more I know, the less I know, the more I need to know -back to Level 1.

FIGURE 2
MOTIVATOR FACTORS

Take place when:

Achievement - You get that feeling which comes when you know you have done something "more than" you were capable of in the past.

Recognition for Achievement - You get a confirmation of the fact that what you have done is significant and "more than".

Responsibility - You are accountable for the results of your achievements and failures.

Advancement - You get opportunities to achieve at higher levels of achievement.

Growth - Your self perception is that a significant amount of learning or psychological growth has taken place.

FIGURE 3
INGREDIENTS OF A GOOD JOB

Exist when there is:

Direct, Timely Feedback - Knowing the results of your behavior is essential for efficient learning. (Achievement, Recognition for Achievement)

A Client Relationship - Establishing either an internal or external human user for the results of what you do makes what you do more meaningful. (Work Itself)

New Learning - Opportunities for you to learn available in each major task. (Achievement, Advancement, Growth)

Flexible Scheduling - You are able to schedule your own time between the start and finish deadline. (Responsibility)

Unique Expertise Allowed - Able to perform in individualized styles. (Work Itself, Responsibility)

Individual Control Over Resources - Responsibility for the use of resources needed to get the task done. (Achievement, Work Itself, Responsibility)

Direct Communications Authority - You can communicate directly within the entire system. (Work Itself, Responsibility)

Personal Accountability - You are held accountable for the results of what you have been given responsibility for. (Recognition of Achievement, Growth)

The last step was to use the Ingredients in Figure 3 to formulate characteristics of a motivating learning

environment. These characteristics can form a set of variables for use as design specifications and also provide an extensive set of variables for experimentation.

Deductive Analysis

What follows is an example of deductive analysis of the concepts contained in Figures 1, 2, and 3 and some of the further insights gained from additional understanding of the dynamics of the parts.

Learning Opportunity

Each task, problem, or exercise should have some intentionally designed opportunity for stretching the student beyond that which they have confirmed that they know. The exercise should allow the student to begin with the initial step in psychological growth or learning (see Figure 1), that of gathering data, then learning and using the relationships in the data, but most importantly, there must also be at the end some opportunity for ambiguity as a challenge for growth. Exercises that only allow for the practice in manipulating relationships that a student already understands quickly loses motivational interest.

Feedback

For every completed action of the student, there should be as direct as possible a reaction. If students must depend upon others to interpret for them the effect of their efforts, if students must depend upon others for their grade, if the effect of what they individually have done is not made strikingly clear, then the psychological effect tends toward perceiving the behavior as random and meaningless. Timeliness in reaction is also important in effective feedback. The longer the wait to understand the implications of what you have done, the harder it is to remember with intensity and preciseness; consequently, the less is learned. In the administration of games, directness and timeliness are often directly correlated with each other. The more direct the feedback on how a student is doing, the more timely the response often is. Feedback on how a student is doing should be as non-evaluative as possible. Those statements which show what was done correctly and what was done incorrectly are more motivationally effective than comparative statements that show how a student did in relation to the other students. Comparative relationships produce evaluative ego issues which are not related to psychological growth but to social development.

Resource Accountability

Having control of and being responsible for the resources needed to accomplish a task leads to increased ownership of outcomes. Some of the typical resources in games and simulation that are available are time, computer time, information, game assets, and manpower. The more resources that the administrator takes the responsibility for handing out, so that the student is relieved of the responsibility for their effective use, the less accountable the student feels for the outcomes of the game or simulation. The less

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resources that the administrator takes responsibility for, the more the student feels and is responsible for the outcomes.

Personal Flexibility

Students should not be held accountable for the style in which they accomplish their tasks but for the effectiveness with which they accomplish them. Game designs which require only one or a very few select approaches to problem solutions, which are limited by the system design to a single approach are lacking in their motivational appeal and consequently in their learning power. This requirement suggests that the more dynamic the programming of the game or simulation, the better for student learning and motivation.

Individual Accountability

The more each student can identify the quality of their own efforts, the more powerful the experience in satisfying their personal needs to learn and grow. Feedback that is not individualized, nor indicative of the specific efforts of an individual, does not work toward meeting or satisfying the need to grow, but instead works toward satisfying what Herzberg calls the Hygiene needs. Hygiene needs are an equally important need system, but not related to the needs which produce learning and motivated behavior, the purpose of the exercise. For example, group scores serve the purpose of meeting the need to belong, a hygiene need. Meeting hygiene needs may become the focus for those simulations and games whose primary purpose is not learning but socializing, group therapy, or encounter groups. Scoring against a curve or ranking game scores for a grade serves more to meet or make deficit the hygiene need for belonging, status, and acceptance than the motivator needs to grow in relation to one's own self. Frequent scoring against an absolute scale provides excellent feedback on personal learning, followed up at the end of the exercise with an evaluation of the current level of accomplishment in relationship to some absolute scale of required competence, meets the motivator need to own the results of one's own growth efforts and to have confirmed that real growth has taken place. Recognition for that growth may also take place at the same time. Grades clearly tied to absolute levels, not comparative levels of achievement, are powerful reinforcers of learning.

FIGURE 4 MOTIVATING OF EXPERIENTIAL AND SIMULATION EXERCISE CHARACTERISTICS

1. Contains sequential steps in the psychological growth process.
2. Has opportunities for ambiguity and new learning in each major task.
3. Evaluates individual effort.
4. Provides timely information reaction to student on every major student action.

5. Students have control of the resources critical to the quality of their individual efforts.

6. Is dynamically programmed to allow for maximum student individuality.

7. Has grading schemes which provide for very frequent feedback on individual student progress against an absolute scale, not a comparative group scale.

8. Provides final grades which are tied to absolute scales of skill achievement and competence.

9. Clear separation of purpose of experiential or simulation exercise in its design: either to meet the needs of the student to learn and grow psychologically or to develop social skills to meet the needs to belong.

RESULTS

The ideas contained in Figure 4 are some of the distillate of the deductive analysis step. These nine variables represent just a few of the possible notions available from the process demonstrated. One feature that is somewhat evident is that all nine characteristics are internally consistent with each other and reinforcing, a bonus of using a single well developed theory.

CONCLUSIONS

Deducing from an already developed and tested theory can often produce not only a greater number of testable variables, but also a set of more theoretically consistent variables. This feature alone will increase the rapidity with which our research on games and simulations advances because we will not have to correct as often for the problems created by sets of variables which are incompatible with each other and even more strikingly we will be able to test much larger, more extensive and more complete sets of assumptions, instead of having to painstakingly rediscover, in a piecemeal fashion, the relationships that well developed theories have already produced. This is the real power of "good" theories.

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