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LONGITUDINAL ANALYSIS OF AN INNOVATIVE TEACHING INTERVENTION

Ralph F. Catalanello, Northern Illinois University
Daniel C. Brenenstuhl, Arizona State University
Albert S. King, Northern Illinois University

ABSTRACT

This paper is a longitudinal study of the possible differences which three teaching methodologies used in an introductory management course might have upon students' perceived learning, satisfaction and personal growth in a capstone course. Approximately 200 of the original 500 students that were randomly assigned in their introductory management course to laboratory sections in which an experiential, simulation or discussion method of instruction was utilized, completed an evaluation questionnaire at the conclusion of their "graduating seniors" only business policy course.

The capstone course required of all majors in the College of Business used a complex business simulation as well as lectures and cases. The findings show that generally the students involved in experiential and simulation sections of their introductory management course provided slightly more negative evaluations of their capstone course experience. Although significant statistical differences were not found between the students, the results suggest that further research concerning the longitudinal effect of various teaching methodologies on student learning using more specifically concurrent instructional approaches might be significant.

INTRODUCTION

As simulations and experiential learning become an increasing part of the educational experience of students of business administration, concern for the efficiency and effectiveness of these teaching methodologies has increased. However, even after years of intensive, if not extensive, research one can find ample evidence to support whatever method of instruction one personally prefers.

The incongruencies present in research findings regarding instructional methods is probably best exemplified by studies surrounding the teaching of business policy. While discussions continue regarding appropriate methods for teaching cases¹⁰ as well as the values of simple or complex simulations,^{9, 1} Keys',⁶ conclusion that the use of both cases and games appeared to be superior to either approach alone seems to be a safe generalization. But these conclusions may be questioned if students receive increasingly less exposure in their curriculum to traditional instructional methods of lecture and discussion. If different teaching methodologies utilize and develop different learning skills, one might expect very different levels of learning and satisfaction to result depending upon prior exposure to a particular instructional method.

Explanations as to why simulations and experiential techniques have become accepted pedagogical techniques focus upon the greater degree to which a student is actively involved and participating in the learning process as well as the almost immediate feedback concerning the results of their action.^{5, 2} Some researchers have, however, suggested that general principles may not receive sufficient attention and that the increased involvement

and time demands may result in less effort being devoted to other learning activities.⁸ Cherryholmes⁴ concluded after a critique of a number of studies, that while games do motivate students, there is little evidence that they teach cognitive material or problem-solving skills, or that they induce critical thinking any more effectively than other methods of learning. Neuhauser⁷ also notes that the many benefits claimed for business games are not supported by much more than anecdotal evidence.

The purpose of this paper is to investigate the effect that prior exposure to various instructional methods may have on the students perceived learning, satisfaction, and personal growth in a case and simulation based capstone policy course. The broad question being addressed in this paper is whether early exposure to nontraditional instructional methods may enhance or detract from future efforts to utilize these teaching methodologies.

METHOD

Subjects

The sample consisted of 209 college seniors enrolled in a required Business Policy course, who had previously completed the introductory management course in which their laboratory section was taught utilizing experiential, simulation or discussion instructional methods.³ The capstone course involved the analysis of 12 to 14 cases (two were formally written up), the completion of three years of simulation performance (12 decisions), a formal written report and oral "Board" presentation regarding simulation performance, and a mid-term and final examination involving text material, cases and the simulation. The students were formed into four person heterogeneous groups which functioned as the executive team for the simulation as well as for oral case presentations.

Questionnaire

At the conclusion of the course students were asked to respond to a course evaluation form using a seven point Likert scale with low numbers being associated with positive responses and high numbers, negative responses. The forms were completed using student social security numbers for identification. The social security number permitted the matching of students to the experimental treatment received previously in their introductory management course.

Analysis

The major independent variable in the study is the type of laboratory section the student had attended during his introductory management course. Sixty-six of the respondents had been enrolled in discussion type laboratory sections, seventy-seven in experiential and fifty-six in sections using a business simulation. Differences between the groups were analyzed using the

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t test. Seven questions related to perceived learning, and six each regarding satisfaction and personal growth were analyzed. Seven questions related to course mechanics and demographics were not used for analysis purposes in this paper.

RESULTS

In Table 1 we see that there was only one significant difference between the three groups with regards to their perceived learning. All three groups learned a bit more in this course with the experiential group being most positive and the discussion group less positive. The discussion group was generally more positive regarding all aspects of the course, though the experiential group felt that the simulation helped to develop their managerial skills a bit more than did those who had previously been exposed to discussion or simulation laboratory experiences. Generally, all groups perceived more learning from the simulation than either cases or the textbook. The discussion group students felt that the cases were of significantly more assistance in integrating the course material than did the simulation students. All of the students had previously been exposed to cases in their introductory management course. Prior exposure to a simulation seems to have had a dampening effect on the students' perception regarding all of the aspects of the course.

No significant differences were found between the three groups with regards to their satisfaction with the capstone course experience. Table 2 shows that the experiential and discussion group students were motivated to work in the course and in their simulation groups more than the students who had had prior exposure to a simulation. However, the simulation group students were somewhat more satisfied with the course overall. The experiential group students felt less of an accomplishment in their simulation experience and enjoyed the simulation somewhat less than similar experiences. While none of the students enjoyed the course more than others they had taken, the discussion group students were less negative than those in the other two groups. It would appear that while the students were somewhat more motivated in the capstone course they didn't particularly enjoy their experience.

TABLE 2

Question	Disc. Group		Exper. Group		Simulation Group		P Ratio	Disc. vs. Exp. Group	Disc. vs. Sim. Group	Exp. vs. Sim. Group
	M	SD	M	SD	M	SD				
Motivated to work in this course	2.88	64	2.87	75	2.98	55	.10	.03	-.38	-.42
Did you enjoy this course?	4.06	69	4.21	77	4.23	56	.18	-.150	-.54	-.08
Overall highly satisfied with this course	3.86	66	3.92	77	3.84	56	1.25	-.111	-.42	-1.37
Feeling of accomplishment in simulation group	2.55	66	2.92	76	2.62	55	1.55	-1.68	-.30	1.27
More motivated to work in simulation group	2.37	65	2.34	74	2.48	56	.26	.16	-.53	-.70
Enjoy simulation more than similar experiences	3.03	67	3.24	76	3.20	56	.38	-.72	-.54	.14

TABLE 1

Question	Disc. Group		Exper. Group		Simulation Group		P Ratio	T-value (Disc. vs. Exp.)	T-value (Disc. vs. Sim.)	T-value (Exp. vs. Sim.)
	M	SD	M	SD	M	SD				
Learn more or less in this course	3.35	65	3.28	77	3.20	56	.55	-.81	-.49	-.78
Learn more or less than from similar experiences	3.18	66	3.27	76	3.34	56	.25	-.66	-.55	-.06
Simulation Developed Managerial Skills	3.06	66	2.92	76	3.11	56	.31	-.58	-.18	-.24
Cases Analyzed Developed Managerial Skills	3.71	66	3.96	77	3.82	56	.12	-.80	-.32	-.43
Textbook Analyzed in Integration of Material	4.33	66	4.72	76	4.69	56	1.10	-1.17	-1.18	.09
Cases Analyzed in Integration of Material	3.23	66	3.61	75	3.79	56	2.07	-1.44	-1.94*	-.63
Simulation Analyzed in Integration of Material	2.56	66	2.81	75	2.64	56	.06	-.24	-.24	-.11

* significant at the .05 level

It is evident in Table 3 that the students generally agreed that the capstone course offered them growth opportunities. The textbook material was least challenging for all students followed by case analysis. The simulation was least challenging to students previously involved in experiential laboratory sessions but yet these same students felt that the simulation offered them opportunities to experience personal growth and development. Students with prior simulation experience responded somewhat less positively regarding the opportunities offered by the simulation.

CONCLUSIONS

This study did not produce significant findings regarding the influence that prior exposure to different teaching methodologies might have longitudinally. However, certain patterns did appear which may be worthy of further investigation. It would seem that

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Question	N	Mean/Standard Deviation	Discussion		Experiential		Simulation		F		Disc. vs. Exp.		Disc. vs. Sim.		Exp. vs. Sim.	
			Mean	SD	Mean	SD	Mean	SD	Value	df	Value	df	Value	df		
Management did challenge me	66	2.56	66	2.79	2.57	56	.40	-.87	-.04	.79						
Analysis of Cases challenge me	66	1.11	66	3.08	1.02	56	.04	.10	.29	.21						
Simulation experience challenge me	66	2.70	66	2.71	2.74	56	1.97	-1.60	-.15	1.56						
Textbook material challenge me	66	4.89	66	4.78	4.63	56	.46	.45	.96	.56						
Simulation offered opportunity for independent thought and action	66	2.08	66	2.31	2.29	56	1.33	-1.22	-1.53	-.41						
Simulation offered opportunity to experience personal growth and development	66	2.82	66	2.74	2.89	56	.21	.36	-.35	-.87						

TABLE 3
T-TEST: GROWTH OPPORTUNITIES

simulation may effect the students perceptions of what he learned when exposed a second time to a nontraditional teaching methodology. The students from the traditional lecture-discussion sections of the introductory management course had more favorable perceptions regarding their learning experience in the capstone course as evidenced by their more positive responses to five of the seven questions. The potential effect of previous learning experiences was less evident with regards to the students' satisfaction or opportunities for growth responses. The discussion section students were more positive in their assessments on three out of the six questions in these two latter categories of evaluation.

While those who believe that simulations and experiential exercises are just new toys that will lose their glamour with use may find some support in the results presented in this paper, it must be noted that all three groups of students maintained relatively more positive evaluations of the simulation portion of their capstone course. So while prior exposure may remove a little of the glitter from innovative instructional methods, they still seem to shine more brightly in the eyes of the student than the more traditional approaches to teaching.

REFERENCES

[1] Burler, Richard J., Pray, Thomas F., and Daniel R. Strang, "An Extension of Wolfe's Study of Simulation Game Complexity," *Decision Sciences*, Vol. 10, No. 3, 1979, pp. 480-486.

prior exposure to group related experiential exercises or a

[2] Carson, J. G. H. and M. J. Misshauk, *Introduction to Gaming: Management Decision Simulation*, (New York: John Wiley and Sons, 1972).

[3] Catalanello, Ralph F. and Daniel C. Brenenstuhel, "The Impact of Three Pedagogue Techniques of Learning," *Journal of Experiential Learning and Simulation*, Vol. 1, No. 1979, pp. 211-225.

[4] Cherryholmes, C., "Some Current Research on Effectiveness of Educational Simulation: Implications for Alternative Strategies," *American Behavioral Scientist*, Vol. 10, 1966, pp. 4-7.

[5] Goetz, B. D. and W. G. Bennis, "What We Know About Learning and Training," *Guidelines for the Aspiring Professor*, Edited by Otis Lipstream and James I. Doi, (Cincinnati, Ohio: South-Western Publishing Company, 1963), p. 80.

[6] Keys, Bernard, "A Review of Learning Research in Business Gaming," (Tennessee Technological University, Working Paper, 1976).

[7] Neuhauser, John J., "Business Gates Have Failed," *The Academy of Management Review*, Vol. 1, No. 4, 1976, pp. 124-128.

[8] Shuman, J. C. and J. A. Hornaday, "Experiential Learning in an Entrepreneurship Course," *Collegiate News and Views*, Vol. 29, No. 1, Fall, 1975, pp. 5-9.

[9] Wolfe, Joseph, "The Effects of Game Complexity on the Acquisition of Business Policy Knowledge," *Decision Sciences*, Vol. 9, No. 1, 1978, pp. 143-155.

[10] Wynd, William R., "Alternatives to the Written Case," *Management Education: A Bicentennial Assessment*, Proceedings of Eightieth Annual Mountain- Plains Management Conference, 1976.