

Insights into Experiential Pedagogy, Volume 6, 1979

AN EXPLORATORY STUDY OF STUDENT CHARACTERISTICS AND EDUCATIONAL PROCESSES IN PROGRAMMATIC EXPERIENTIAL LEARNING

Eugene T. Byrne, Southern Methodist University
Douglas E. Wolfe, University of West Florida

ABSTRACT

This paper uses correlation analysis to investigate the relationship between demographic, ability and personality factors and two performance variables: overall grade point average and total scores in an assessment center. Further investigation of performance is analyzed using teaching method and learning resources as independent variables. Findings reveal differences in understanding performance for grade related outcomes compared to managerial skill levels as measured by assessment center ratings.

INTRODUCTION

In the last quarter century simulation has emerged as an accepted teaching method in schools of business administration. However, simulation cannot be considered a mainstream activity of business education. A recent estimate of simulation use indicated that "... for all schools taken as a whole, simulations are used in less than 1 percent of all business courses taught." [1]. Some of the failure for widespread use of simulations can be traced to specific causes: the predominance and success of the case (and other) methods, the necessity, in most cases, for a computer, the probable extra time and energy required of faculty and the changing role requirements for faculty using simulation. Perhaps more important is the failure of research to convincingly demonstrate the value of the simulation approach [7,8].

While research on the value of simulation has continued and been supplemented by studies aimed at identifying predictor variables, the research on experiential learning has been relatively scarce [5, p.167]. What does exist lacks a conceptual framework and generally conflicts on the value of experiential learning as a teaching tool [5, pp. 165-167].

Finally, both the simulation and experiential approaches have been evaluated from the standpoint of their use in a single course. There is some doubt in the writers mind that these pedagogies will ever achieve widespread use until they are investigated for their ability to educate students at each and every point in the business curriculum. One of the great assets of the case method is its ability to be the primary, if not the sole source of pedagogy in schools of business.

It was with this purpose in mind that our school undertook the creation of an experiential option for M.B.A. students in the fall of 1976. The program permitted students to complete all of the requirements for the M.B.A. degree by working on live projects in the business community. Research on the performance of the experimental student group and a control group was assessed on the basis of grades received in the program and an assessment center administered at the end of the program. In terms of grades the performance of the experimental group was at least equal to that of control group students. In the assessment center twenty management skills were measured and the experimental group demonstrated superior performance in eight while the remaining twelve dimensions showed no significant difference [6, pp. 19-22].

The purpose of this paper is to examine whether (1) there are demographic and ability variables that can be used to predict performance in an experiential program and (2) identify activities and resources used by successful experiential learners.

THE DATA

The experimental (n=21) and control groups (n=21) completed the Omnibus Personality Inventory and the Personal Orientation Inventory upon entering the program. The students also provided the usual demographic data while ability data was available in the form of undergraduate grade point average and GMAT scores. Student attitudes toward education were obtained at the end of the first semester by the use of a Likert-type scale. At the end of the program the students completed a questionnaire asking them to identify and value the resources contributing to their education and to specify the percent of coursework completed by the different teaching methods offered in the school.

PERFORMANCE MEASURES

The study utilized two performance measures: overall grade point average and total assessment center score. The assessment center utilized role play, an in-basket exercise and small group discussions to evaluate performance on twenty dimensions of managerial skill. The total assessment score is the arithmetic sum of un-weighted scores on the individual dimensions.

RESULTS

Pearson correlation coefficients are shown in Table 1 for selected demographic and ability variables.

TABLE 1
PEARSON CORRELATION COEFFICIENTS: DEMOGRAPHIC
AND ABILITY FACTORS AND PERFORMANCE VARIABLES (a)

Demographic and Ability Factors	Performance Variables	
	Overall G.P.A.	Assessment Center Total Score
Age	-.0799	.1796
Range 21-33 years	S=.864	S=.476
Undergraduate G.P.A.	-.1377	-.3241
	S=.563	S=.190
G.M.A.T. - Total Score	.4630	.3144
	S=.035	S=.204
G.M.A.T. - Verbal Score	.5117	.2729
	S=.021	S=.273
G.M.A.T. - Quantitative Score	.4502	.2562
	S=.046	S=.305
Full Time Business Experience	.2584	.2817
Range: 0 - 126 months	S=.258	S=.257

(a) The significance level for each coefficient appears in the table below each coefficient.

Insights into Experiential Pedagogy, Volume 6, 1979

Two observations are noteworthy for this data. First, is the failure to find any correlation between the number of months of full-time business experience and performance in the experiential program. This is true whether performance is measured by grade point average or assessment center score. Nor is there any relationship between age and performance.

A second observation is that overall grade point average is significantly correlated with GMAT scores while assessment center performance is not related to GMAT scores. At the same time undergraduate G.P.A. was not significantly related to either measure of performance. This finding lends credibility to the position that aptitude tests are useful in predicting grades in school [2, p.1]. However, to the extent that current research has demonstrated the assessment center to be the superior method for identifying management potential these results suggest that the admission decision may be based on inappropriate criteria.

Table 2 presents the Pearson correlation coefficients for the relationship of student attitudes to the performance variables.

TABLE 2
PEARSON CORRELATION COEFFICIENTS:
STUDENT ATTITUDES AND PERFORMANCE VARIABLES (a)

Student Attitudes	Performance Variables	
	Overall G.P.A.	Assessment Center Total Score
Education is Cooperation	-.4947 S=.023	-.0039 S=.988
Trust of Others	-.2482 S=.278	.1266 S=.617
Preference for Risk	.1436 S=.535	-.0249 S=.922
Students Should Create the Syllabus	-.2111 S=.358	.0008 S=.998
Student Evaluations Are Important in Grading	-.0685 S=.768	-.1129 S=.656
Students Are Totally Re- sponsible for What Is Learned	-.3063 S=.177	-.1557 S=.537
How You Accomplish Task Is More Important Than What You Accomplish	-.3956 S=.076	-.452 S=.060

(a) The significance level for each coefficient appears in the table below each coefficient.

As shown in the table the student attitude "Education is Cooperation" is inversely related to grade point average but it is not related to assessment center score. Thus there is the suggestion that high G.P.A. students view education as a competitive environment. This is not a surprising outcome for most observers of the educational scene. What is surprising is that students with higher managerial potential do not view education on the competitive-cooperative continuum.

Further examination of Table 2 reveals no relationship between performance measures and attitudes toward trusting others, preference or avoidance of risk, student inputs to grading and course syllabi and acceptance of total responsibility for learning outcomes. Finally the attitude toward task accomplishment is interesting. Though not significant the students' attitude is more toward accomplishing a task than the means by which you arrive at task accomplishment.

The results from the correlation analysis of the factors on the Omnibus Personality Inventory and the Personal Orientation Inventory are not presented in tabular form since all relationships were not statistically

significant.

Turning to the results of the correlation between performance and percent of coursework completed by different pedagogies, there are some interesting findings. As shown in Table 3 overall G.P.A. is related to percent of coursework completed in the project and simulation (experiential) modes and inversely related to the amount of coursework taken by the lecture method. At the same time, there is no relationship between any of the teaching methods and performance in managerial skills.

TABLE 3
PEARSON CORRELATION COEFFICIENTS:
ACTIVITY VARIABLES AND PERFORMANCE VARIABLES (a) (b)

Activity Variable	Performance Variables	
	Overall G.P.A.	Assessment Center Total Score
% Lecture (20.0)	-.6760 S=.001	-.2266 S=.399
% Cases (13.8)	-.2299 S=.344	-.1953 S=.469
% Simulations (5.6)	.4846 S=.036	.0820 S=.763
% Internships (5.6)	-.1720 S=.481	.3101 S=.242
% Projects (55.0)	.5934 S=.007	.1459 S=.590

(a) The significance level for each coefficient appears in the table below each coefficient.

(b) The average percent of coursework completed by each teaching method is shown in parenthesis behind the activity variable.

These findings appear to be somewhat contradictory seeming to indicate that managerial skill attainment is unrelated to the percent of coursework completed by experiential learning. However, noting that the mean percent of coursework completed by projects was fifty-five percent suggests that substantial levels of experiential learning are beneficial for students. The fact that overall G.P.A. has a positive significant relationship to experiential learning is evidence that students can benefit from additional experiential learning. In terms of this particular M.B.A. program the additional experiential learning can be obtained by reducing students involvement in lecture-type courses.

Table 4 presents the relationship between the students' evaluation of instructor specified learning resources and the performance variables. Also included in the table are the rankings provided for the importance of each of the resources.

Inspection of the data reveals that there is a significant inverse relationship between the value assigned to the instructors in the program and the development of managerial skills. While not statistically significant, the relationship between instructor and overall G.P.A. is in the same direction. This finding lends credibility to the value of the experiential method of teaching. The only other relationship of significance is that performance is improved as the use of faculty not involved in teaching courses increases.

The rankings of learning resources can be usefully compared to those presented for a group of students involved in a business policy simulation. As reported by Wolfe [9, p.322] students ranked "Playing the Business Game" first and rated "Lectures and Discussions of Assigned Readings" second. In this study the instructor contribution was also ranked second as a resource to learning. While the Wolfe study offers no

Insights into Experiential Pedagogy, Volume 6, 1979

TABLE 4
PEARSON CORRELATION COEFFICIENTS: LEARNING RESOURCE
VARIABLES AND PERFORMANCE VARIABLES (a) (b) (c)

Learning Resource Variable	Performance Variables	
	Overall G.P.A.	Assessment Center Total Score
Instructor Value (2) [12.9]	-.3103 S=.196	-.5084 S=.044
Other Faculty Value (8) [5.5]	.4863 S=.035	.4938 S=.052
Classmates Value (3) [11.5]	-.0005 S=.999	-.1525 S=.573
Sponsor Value (4)	.1472 S=.548	.3900 S=.135
Academic Background Value (6)	.1755 S=.472	-.0905 S=.739
Work Background Value (9)	-.1697 S=.487	-.0719 S=.791
Assigned Readings (5)	-.2080 S=.393	.0961 S=.723
Unassigned Readings (7)	-.1769 S=.468	-.1882 S=.485
Self Initiative (1) [29.9]	.0970 S=.693	.1163 S=.668

(a) The significance level for each coefficient appear in the table below each coefficient.

(b) Students ranking of the contribution of each resource to their learning is shown in parenthesis behind each resource.

(c) The mean value of points assigned to each resource is shown in brackets behind the student rankings.

direct comparison to the self-initiative dimension reported here as the first ranked resource, it appears likely that there is a large element of self-initiative involved in "Planning the Business Game." Of interest however is the rankings assigned to course reading and classmates. Wolfe's study shows that course readings have much higher rating than classmates while the results reported here indicate that classmates have a higher ranking than course readings. In fact, classmates were almost as important as instructors, as shown by the mean point values in Table 4. This result is not consistent with Wolfe's finding.

Finally, the relatively low rankings assigned to academic background (sixth) and work background (last) support findings reported earlier in this paper that undergraduate G.P.A. and amount of work experience do not predict performance.

CONCLUSION

The results of this exploratory study do not provide a very solid basis for predicting performance in programmatic experience based learning systems. Demographic and personality variables showed no relationship to performance. Yet it has been demonstrated that there is no necessity for students to have business experience prior to participating in extensive project work. The results do suggest that the G.M.A.T. score can be used to help identify the students academic performance but that these scores are not related to managerial skill development. There is a further suggestion that high G.P.A. performance is found among students whose attitude is more competitive than cooperation while managerial skill development is not related to this factor.

Apparently both types of students benefited from the high level of involvement in experiential learning. It has been suggested that

experiential learning activity in the form of projects, could improve academic performance.

The significance of self-initiative and classmates to student performance suggests that one area for faculty contribution to improved student performance would be in the improvement of self-learning ability. As noted earlier, high performance is accompanied by attention to task rather than process suggesting that introspection is not a highly developed skill among students. Further research in this area is warranted especially in view of commentary on the value of introspection as a managerial skill [3, p. 193] and as a factor involving performance [4, p. 3131].

Further research in the area could productively follow the framework provided by Schneier [5]. This study utilized some of the variables provided by Schneier but he identifies many more. Another area for research is in the area of the appropriate managerial skills to be measured in an assessment center valuation of management potential. This study utilized a set of skills identified by fifteen managers and six faculty. It is possible that more extensive studies can provide a more appropriate set of skills and this may improve the reliability of the use of these skills as performance measures.

REFERENCES

- [1] Gosen, Kenneth R., "An Analysis of ABSEL: Its Past Achievements and Future Prospects," in Carl C. Nielsen (ed.) New Horizons in Simulation Games and Experiential Learning (Wichita, Kansas: Wichita State University, 1977, pp. 207-214).
- [2] McClelland, David C., "Testing for Competence Rather Than for 'Intelligence'," American Psychologist, Vol. 28, No. 1, January 1973, pp. 1-14.
- [3] Mintzberg, Henry, The Nature of Managerial Work (New York: Harper & Row, Publishers, 1973).
- [4] Ruble, Thomas L., "Locus of Control and Performance in a Management Simulation" in Brenenstuhl and Certo (editors) Exploring Experiential Learning: Simulations and Experiential Exercises (Tempe, Arizona: Bureau of Business and Economic Research, 1978, pp. 311-315).
- [5] Schneier, Craig Eric, "Experiential Learning: Toward the Development of a Theoretical Base and the Identification of Variables and Hypotheses to Guide Research" in Carl C. Nielsen (ed.) New Horizons in Simulation Games and Experiential Learning (Wichita, Kansas: Wichita State University, 1977, pp. 166-173).
- [6] Wolfe, Douglas E. and Eugene T. Byrne, "Programmatic Experience-Based Learning in an M.B.A. Program in Brenenstuhl and Certo (editors) Exploring Experiential Learning: Simulations and Experiential Exercises (Tempe, Arizona: Bureau of Business and Economic Research, 1978, pp. 16-22).
- [7] Wolfe, Joseph, "A Comparative Evaluation of the Experiential Approach To a Business Policy Learning Environment," Academy of Management Journal, Vol. 18, Number 3, September, 1975, pp. 442-452.
- [8] Wolfe, Joseph, "The Effects and Effectiveness of Simulations in Business Policy Teaching Applications," Academy of Management Review, April, 1976, PP. 47-56.

Insights into Experiential Pedagogy, Volume 6, 1979

- [9] Wolfe, Joseph, "Correlations Between Academic Achievement, Aptitude, and Business Game Performance," in Brenenstuhl and Certo (editors) Exploring Experiential Learning: Simulations and Experiential Exercises (Tempe, Arizona: Bureau of Business and Economic Research, 1978, pp. 317-324).