"The Use of Concept Mapping in Teaching Strategic Management"
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ABSTRACT

Traditionally the capstone business course has been *one* that attempts to successfully tie together concepts or topics that are presented in other courses throughout a student's undergraduate career. A technique called "concept mapping" is used whereby pictures or maps are constructed of those topics that show not only the relationships among the concepts or topics but also of the relationships of the elements that comprise these topics. The relationships illustrated by the maps help to reinforce how various areas of a firm are affected by elements used in constructing a strategic plan. The use of this technique has shown to increase both individual performance and the class's level of understanding as a whole and as it relates to the cohesiveness of the class project.

INTRODUCTION

A challenge in teaching the concepts contained in a business capstone course is to show the interrelationships between these concepts as well as those introduced through other courses. Concept mapping is one technique that can be used to visually represent the meaningful relationships between concepts to help gain a better understanding or perspective of the "big picture" of strategic management and in seeing the dimensionality of the strategic decision-making process.

Concept mapping is a type of structural conceptualization which can be used by individuals or groups to develop a conceptual framework which can guide evaluation or planning and that produces an interpretable pictorial view (concept map) of ideas and concepts and how these are interrelated. This better perspective can be seen in the level of understanding displayed through both exam scores and the cohesiveness of a semester-long class project. The objectives of the exercise are to 1) draw an image of the relationships, simple and complex, that comprise strategy development, and 2) to be able to understand these relationships and the dynamics of the variables that comprise the strategic decision-making process when constructing a cohesive strategic plan for an organization.

THE MAPPING EXPERIENCE

This exercise was conducted in three parts, the first being a total in-class activity and subsequent parts relinquishing more control to the student over the utilization of the exercise and the interpretation of the maps.

The first part was conducted after the first exam. A word list was given to the students containing topics that were covered prior to the first exam. The second part is an out-of-class activity conducted prior to the second exam. Students were required to return the updated maps with the second exam. The third part consisted of students updating the maps, but not being required to turn them in. In the latter two parts, updated lists were distributed to students that included topics covered to-date.

The primary purpose of using concept mapping is to determine the existence of a better (greater) level of understanding of the course material as displayed by the level of cohesiveness of the class project and through exam scores. The level of cohesion is displayed by the ability to properly define an issue and to trace its line-of-thought through the various departments and Levels of strategy. Secondary considerations were: 1) for exam scores, we would expect to see an increase in the mean scores and, 2) we would also expect to see a decrease in the standard variation of the scores when using the mapping technique.

METHODOLOGY

A paired samples t-test was conducted to determine the significance and effect the mapping experience had on both the mean test score and the standard deviation of the score. Looking at paired exams 1-2

from Tables I - 3 and Exams I and 2 from Table 4, we see the mean scores did increase while the standard deviations of those scores decreased. We also can observe a moderate degree of correlation as a result of the mapping experience.

When considering paired exams 2 - 3 from Tables 1 -3 and exam scores from Table 4, a decrease in exam scores is noticed along with an increase in the standard deviation of those scores, and either small or large changes in the correlation of those scores.

Paired exams 1 - 3 from Tables 1 - 3 and exams 1 and 3 from Table 4 show the effect of the mapping technique over the course of the term and the student's responsibility for completing the exercise. Although the effects are still of a positive nature, they however are not as great as when the exercise is conducted under a more controlled environment.

The level of cohesion displayed in the class project is in one sense a subjective measure of the level of understanding, but also in some respects related to exam scores. Those sections that had shown greater increases in mean scores and smaller standard deviations also displayed better cohesion through the class project.

CONCLUSION

These results would tend to support the alternative hypothesis that there is a difference in mean scores and standard deviations as a result of using this technique and that this difference results in a positive effect. This effect, when not reinforced in a controlled environment, has a tendency to diminish as evidenced by the decrease in mean scores and associated increases in the standard deviation and falls to either at or below pre-treatment levels. This would also signify (and support) a notion of the existence of (other) extraneous (intervening) variables such as time lapse between treatments or parts, and learning characteristics of the class.

Table 1
Spring 1997- Section 1

Paired Exams	Paired Differences Mean	SD	SE	t-value	Corr	2-tail Sig
1 to 2	-10.19	13.83	2.713	-3.76	0.138	0.001
2 to 3	17.15	15.84	3.108	5.52	0.401	0.000
1 to 3	6.96	18.64	3.656	1.9	0.199	0.068

Table 2
Spring 1997- Section 2

Paired Exams	Paired Differences Mean	SD	SE	t-value	Corr	2-tail Sig
1 to 2	-18.76	14	2.556	-7.34	0.473	0.000
2 to 3	17.5	14.31	2.612	6.7	0.469	0.000
1 to 3	-1.266	22.38	4.086	-0.31	0.022	0.000

Table 3
Spring 1997- Section 3

Paired Exams	Paired Differences Mean	SD	SE	t-value	Corr	2-tail Sig
1 to 2	-0.709	7.506	1.348	-0.53	0.609	0.602
2 to 3	15.322	16.33	2.932	5.23	0.124	0.000
1 to 3	14.612	16.37	2.941	4.97	0.229	0.000

Table 4
Spring 1997 - Mean Scores/Standard Deviations

	Section					
Exam	1		2		3	
	Mean	SD	Mean	SD	Mean	SD
1	121.88	11.58	114.23	15.84	133.25	9.31
2	132.07	9.3	133.00	8.5	133.96	6.67
3	114.92	17.08	115.50	16.16	118.65	15.74

REFERENCES

[1] Trochim, William, M.K., (1989a), An Introduction to Concept Mapping for Planning and Evaluation, and Program Planning, 12, 1, 1-16 (online)
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