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# An Empirical Study of Course Selection and Divisional Structure in Distance Education Programs

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## **ABSTRACT**

Fifty-two U.S. colleges and universities were surveyed to gather data on structure and course selection in distance education programs. Concerns focused on the influence of distance education program structures on strategic selection of courses and resulting outcomes. Central to the study were the differentiation between structural choices of distance education programs and whether criteria were used to establish the courses within the programs. Major results suggest that distance education divisional structures effected types of course offerings, but a clear association between the institutional criteria for choosing course offerings and the type of offerings available did not emerge. In addition, criteria and course offerings were not related to outcome variables of student grade point average, enrollment, and student completion rates. The findings imply that the choice of structure for providing distance education may have more impact on course offerings than specific institution-wide criteria, and that these variables exert minimal effect on institutional outcome measures. Conclusions and Implications of these findings are discussed.

## **Introduction**

Distance education (DE) is gaining acceptance among both faculty (Abacus 2000) and institutions (Phipps and Merisotis 1999) as an acceptable method of providing educational material. Distance education as a concept is not new, in fact it has existed in some form or other since the 19<sup>th</sup> century (Phipps and Merisotis 1999). The relatively new and widespread applications available on faculty desktops provided by the Internet, especially the World Wide Web, have brought DE to the forefront of academic discussions. As evidence of the increased acceptance and growth of DE as part of the higher education landscape, a recent member survey commissioned by the National Education Association found that one in ten of its members currently teaches a DE course, and 90% report that DE courses are either currently taught or are under consideration at their institutions (Abacus 2000).

Today's concept of distance education follows Steiner's (1997) description as an organizational education program that utilizes one or more media tools to deliver instruction to students, that for various reasons, are either unable to utilize the traditional on-campus style of education or have a preference for a high tech instructional format . There are multiple methods of delivering DE courses,

currently including audio and video conferencing, computer-assisted methods, and computer only methods, and these methods are being utilized at an increasing rate at the beginning of the 21<sup>st</sup> century (Sherry 1996).

Multiple rationales exist for institutions to add a technology-based DE component to their course offerings including: as a way to offer more class options, increase enrollment, and/or raise revenue (Olsen 1999). Little empirical research exists on potential strategic success factors that may make one DE program more successful than another. A search of the literature revealed many prescriptive articles and case studies (Merisotis and Phipps 1999), but few empirical studies providing guidance on choosing DE success factors or their effect on strategic outcomes. Many of the studies examined had conclusions that were positive or neutral toward DE, especially as it related to the quality of education. However, Phipps and Merisotis (1999), in their review, question the quality of the research, and warn against drawing firm conclusions from the existing body of research. They point out that the current literature emphasizes individual student outcomes rather than academic programs or strategic issues. (Phipps and Merisotis 1999).

This study attempts to examine the strategic planning elements of program structure and course selection criteria in DE course selection, specifically how centralized or decentralized institutional structures and criteria impact types of courses or programs offered in a DE format. In other words, do schools assign administration of the program to a central DE department, handling all course offerings for the entire institution or do individual divisions or departments administer their own courses? Furthermore, do the schools have a formal selection criteria designed for DE course selection? This study also examines the effects of structure, criteria, and courses offered in a DE format on success measures of grade point average (GPA), student completion rates, and enrollment. This research is significant, because the increasing costs and resources required for DE dictate that an institution should know the importance of a strategic approach to and the impact of committing to one of these DE structures.

## Propositions

The fact that empirical research related to distance education outcomes is extremely rare (Phipps and Merisotis 1999), forcing exploratory research on the topic. A list of points of interest was drawn through conversations with directors of college and university DE programs. In those conversations, it was evident that some DE programs were centralized and others decentralized. The directors were asked what concerns they had launching their DE programs. Most responded that they hoped to increase enrollment and improve student completion rates. In addition, they hoped to preserve the integrity of the courses offered, not making them more difficult or easy than those in the traditional programs. Therefore, the most important factors in this study became centralized/decentralized programs, enrollment, student completion rates, and course offerings. These factors led to the research propositions of this study, which appear in table 1, below.

**Table 1. Summary of Research Propositions**

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| <b>Proposition 1:</b> The choice of DE program structure (centralized or decentralized) will impact types of courses offered in a DE format. |
| <b>Proposition 1a:</b> The choice of a centralized DE program will impact types of courses offered in a DE format.                           |
| <b>Proposition 1b:</b> The choice of a decentralized DE will impact types of courses offered in a DE format.                                 |

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| <b>Proposition 2:</b> The existence of a formal set of criteria for selecting DE courses will impact types of courses offered in a DE format. |
| <b>Proposition 3:</b> The courses offered in a DE program will impact success measures.   |
| <b>Proposition 3a:</b> The courses offered in a DE program will impact GPA.   |
| <b>Proposition 3b:</b> The courses offered in a DE program will impact student completion rates.  |
| <b>Proposition 3c:</b> The courses offered in a DE program will impact student enrollment.  |

## METHODS

A sample of 58 higher education institutions was chosen randomly from 233 colleges and universities listed in the Bear's Guide to Earning College Degrees Nontraditionally (Bear and Bear 1995). Each participant was the director of the DE program at his or her school, the school was accredited, and featured a nontraditional educational program component. The data were gathered through telephone interviews. Participants were asked a total of 11 questions relating to the DE program at their schools. Each telephone interview lasted from 15 to 30 minutes. Respondents were assured of confidentiality and anonymity and were offered summaries of the aggregated results of the study. Six schools were excluded, because their DE programs were in a very early stage of development. A total of 52 higher education institutions participated in the survey, which resulted in a 100% response rate. The sample consisted of 18 small-sized colleges or universities (less than 2,000 students) representing 34.6% of the sample, 18 medium-sized learning institutions (3,000 to 7,000 students) representing 34.6% of the sample, and 16 large institutions (7000 to 15,000 students), representing 30.8% of the sample.

### Variables

*Course Choice.* Institutions select courses for inclusion in DE programs. These choices or course offerings in school programs were aggregated into six general academic areas: General Education, Liberal Arts, English-Humanities, Math-Science, Business, and Engineering.

*Grade Point Average (GPA).* Information comparing Distance Learning Student GPA and that of traditional programs was gathered. The GPA variable quantified the difference between traditional and DE students' GPAs as lower, higher, or the same as traditional students. This variable is important, because a significant difference in GPA may be indicative of inconsistencies between the programs or strategic structural choice.

*Enrollment.* This variable determined perceived effects of DL programs on enrollment. Responses were classified according to perceived increases in enrollment. The percentage ranges were: 0-5%, 6-10%, 11-15%, 16-20%, and over 20%.

*Student Completion Rate.* The completion rate variable identifies the effect of DE on program completion rates of students. Responses were classified according to the percentage of students completing DE programs. The percentage ranges were: under 20%, 20-35%, 36-50%, 51-70%, 71-85%, and 86% and over. This variable indicates whether course type, or divisional structure has a significant impact on student completion.

*Decentralized DE Departments.* This variable identified whether each academic division in the institution had its own decentralized DE program.

*Centralized DE Program.* This variable determined whether institutions had a separate division to centrally manage the DE program.

*DE Criteria.* This variable determined whether institutions used an established criteria for choosing the types of courses offered in a DE format. In other words, were the courses systematically chosen or were they selected for reasons of availability or convenience?

### Data Analysis

A correlation analysis was conducted to determine the degree of linear association among variables. In addition, multiple regression analysis was used to find the strength of the relationships between independent and dependent variables. More specifically, backward regression was used to refine the regression equations, separating non-contributing variables from contributing variables. Where adjustments were made to the regression, indications are made in the following Results section.

## RESULTS

### Correlation Results

A correlation analysis revealed no significant correlation among the independent variables used in the study. Therefore, combining of these variables for multiple regression analysis was unnecessary.

### Multiple Regression Results

*Course Selection with a Centralized DE Strategy.* Multiple regression analysis showed a significant effect ( $\alpha \leq .05$ ) of centralized DE programs and DE courses in Business, Liberal Arts, and English/Humanities (Proposition 1a, table 2). Looking at the individual variables in the model, Business was negatively related to centralization, while English/Humanities and Liberal arts courses were positively correlated, indicating that business class offerings are negatively correlated with institution-wide planning, while the others are positively correlated with a centralized DE program. After applying backward regression, the most significant individual variable in the model was English/Humanities courses ( $\alpha \leq .01$ ).

**Table 2. Model Results: Course Selection with a Centralized DE Strategy (Proposition 1a)**

| <b>R<sup>2</sup></b> | <b>F</b>                             | <b>Significance</b> |                     |  |
|----------------------|--------------------------------------|---------------------|---------------------|--|
| .210                 | 3.011                                | .043                |                     |  |
| <b>Variable</b>      | <b>Standardized Coefficient Beta</b> | <b>t</b>            | <b>Significance</b> |  |
| Constant             | .                                    | 1.733               | .092                |  |
| English/Humanities   | .460                                 | 2.880               | .007                |  |
| Liberal Arts         | .154                                 | .972                | .338                |  |
| Business             | -.193                                | -1.252              | .219                |  |

Dependent Variable – Centralized DE Program

*Course Selection with a Decentralized DE Strategy.* A significant effect ( $\alpha \leq .05$ ) was evident of

decentralized DE programs on Business, Liberal Arts, Math-Science, General Education and English Humanities course selections (Proposition 1b, table 3a). By removing noncontributing variables, keeping the Math-Science and Liberal Arts courses, the model achieved a significance level of  $\alpha \leq .01$  (table 3b). These variables indicated positive coefficients of correlation with a decentralized DE strategy.

**Table 3a. Model Results: Course Selection with a Decentralized DE Strategy (Proposition 1b)**

| <b>R<sup>2</sup></b> | <b>F</b>                             | <b>Significance</b> |                     |
|----------------------|--------------------------------------|---------------------|---------------------|
| .292                 | 2.561                                | .047                |                     |
| <b>Variable</b>      | <b>Standardized Coefficient Beta</b> | <b>t</b>            | <b>Significance</b> |
| Constant             | .                                    | 1.982               | .056                |
| Math-Science         | .294                                 | 1.722               | .095                |
| English/Humanities   | -.103                                | -.578               | .568                |
| General Education    | .108                                 | .689                | .496                |
| Liberal Arts         | .419                                 | 2.644               | .013                |
| Business             | -.041                                | -.259               | .797                |

Dependent Variable – Decentralized DE Program

**Table 3b. Reduced Model Results: Course Selection with a Decentralized DE Strategy (Proposition 1b)**

| <b>R<sup>2</sup></b> | <b>F</b>                             | <b>Significance</b> |                     |
|----------------------|--------------------------------------|---------------------|---------------------|
| .270                 | 6.300                                | .005                |                     |
| <b>Variable</b>      | <b>Standardized Coefficient Beta</b> | <b>t</b>            | <b>Significance</b> |
| Constant             | .                                    | 2.667               | .012                |
| Math-Science         | .269                                 | 1.833               | .076                |
| Liberal Arts         | .457                                 | 3.116               | .004                |

Dependent Variable – Decentralized DE Program

*Structure and Criteria.* The data indicated no statistical relationship between the establishment of a criteria and the type of DE courses offered (Proposition 2, table 4). In addition, no statistically significant associations existed between centralized or decentralized structure and course criteria.

**Table 4. Structure and Criteria: Best model (retained only Business courses) (Proposition 2)**

| <b>R<sup>2</sup></b> | <b>F</b> | <b>Significance</b> |
|----------------------|----------|---------------------|
| .076                 | 2.053    | .164                |

Dependent Variable – DE Criteria

*Course Offerings, Structure, and Success Measures.* Although this study also examined the relationship between course offerings and structure and GPA (Proposition 3a, table 5a), enrollment (Proposition 3b, table 5b), and student completion rates (Proposition 3c, table 5c), none of these success measures were significantly related to any types of courses. It is important to understand that the GPA measure refers to differences between DE classes and traditional classes, and thus does not measure the relative GPA among the types of classes.

No significant effect of DE program selection on enrollment was evident. It appears that no program offering boosted or detracted from overall enrollment in the schools surveyed. Similar to the finding regarding DE program selection and enrollment, the analysis revealed no relationship between DE program selection and student completion rates. These results indicate that no particular program major affected students' ability to complete a degree program.

**Table 5a. Success Measures: Best model (retained only General Education courses) (Proposition 3a)**

| <b>R<sup>2</sup></b> | <b>F</b> | <b>Significance</b> |
|----------------------|----------|---------------------|
| .051                 | 1.736    | .197                |

Dependent Variable – GPA

**Table 5b. Student Completion Rate: Best Model (retained only Liberal Arts courses) (Proposition 3b)**

| <b>R<sup>2</sup></b> | <b>F</b> | <b>Significance</b> |
|----------------------|----------|---------------------|
| .088                 | 2.989    | .094                |

Dependent Variable – Student Completion

**Table 5c. Student Enrollment: Best Model (retained only Math-Science courses) (Proposition 3c)**

| <b>R<sup>2</sup></b> | <b>F</b> | <b>Significance</b> |
|----------------------|----------|---------------------|
| .102                 | 3.877    | .057                |

Dependent Variable – Enrollment

## **DISCUSSION**

### **Structure/Course Offering Effects**

*Business:* The negative relationship between business courses and a centralized DE program indicated that a centralized structure may discourage business DE courses. Interestingly, business courses were neither positively nor negatively related to decentralized divisional structure. This result is somewhat surprising in that one might expect a negative relationship with centralization to lead to a positive relationship with decentralization. However, this finding held true with respect to all comparisons

between structure and course offerings.

*English-Humanities:* The English-Humanities course offerings were significantly related to centralized DE programs. Such a relationship may indicate a preference on the part of centralized administrations toward English and Humanities courses. However, the lack of such a relationship with decentralized programs may indicate a reluctance on the part of these departments to place these courses in a DE format.

*Liberal Arts:* Liberal Arts courses were not related to centralized or decentralized DE structure. Although some individual Liberal Arts courses may work well in a DE format, it is possible that, as a body, these courses are thought to be more compatible with a traditional program.

*Math-Science:* Mathematics and science courses were not related to centralized or decentralized DE structure. As with Liberal Arts courses, it is possible that those courses may be thought to be more compatible with a traditional program.

*Engineering:* Engineering courses were not related to either type of DE structure. Perhaps these courses, as a group, are viewed by DE administrators as too technical and complex for a DE format at this time.

### **Success Criteria relationships**

*GPA* - The authors expected to find a significant difference between DE and traditional GPAs. However, ideally, one would hope not to find such a condition, because it could signal an inequity in the program, regardless of the program structure. An earlier study by Stone, Tudor, Grover and Orig (2000) found significant relationships tied to perceptions of relative student GPA's but that study did not consider these relationships among types of courses.

*Enrollment* - The authors had expected to find that certain DE offerings would impact enrollment, but no evidence was found to this effect. Although many articles cite enrollment increases as a targeted outcome of DE programs, this study found no such evidence.

*Student Completion Rates* - The DE format appears not to hamper or promote the degree completion process. Such a condition possibly could indicate equity between traditional and DE programs. However, institutions hoping to initiate a DE program to make courses more convenient and speed degree attainment for students may reconsider.

### **Conclusions**

Choice of centralized or decentralized structure did not appear to be related to institutions' criteria for choosing what types of courses to offer. What those criteria might be was beyond the scope of this study, so no conclusions can be drawn about the impact of these criteria on specific course choice, however, one would expect those institutions, which have developed criteria to pursue a strategic approach in developing DE programs. However, no apparent relationship exists between structure and criteria or between course choice and criteria. Given this situation, the strategic choice of structure seems to have more impact on course choice than that of developing criteria. A strategic approach to establishing a DE program should be outcome-based. It is reasonable to expect the outcome variables of student completion rates and enrollment to be positively impacted by the existence of strategically-oriented DE programs, with carefully designed structure and criteria. The absence of such a result may indicate the lack of a comprehensive, strategic approach to DE programs within this sample. Therefore, the DE programs in this sample may have evolved more through trial and error than through strategic planning. Whether this tendency exists across the population of DE schools is beyond the bounds of this body of research.

### **Limitations and Suggested Further Research**

This study was limited by its exploratory nature and a lack of former research in this field, causing a broad brush approach to identify avenues of future research. This body of research is intended as a starting point for development of a DE program model to reduce risk in establishing and continuing such programs. At the outset, the authors anticipated that DE programs were strategically developed, and that outcome effects would be evident. However, expected results emerged in some areas and surprising results in others, and the link to outcome-based variables of enrollment and student completion rates was not found. Further research should target strategically developed DE programs to study outcome effects of programs and courses, searching for a link between DE programs and performance. Additional variables should be identified and tested on a large sample.

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