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DEVELOPING EXPERIENTIAL PROCESSES FOR TEACHING QUANTITATIVE TECHNIQUES FOR BUSINESS

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ABSTRACT

Quantitative methods for business is a staple within colleges of business. Achievements in computer science and mathematics have resulted in better modelling systems for improving the quality of decisions in organizations. Unfortunately, most modelling advantages have not been realized. Insight is held by relatively few scholars who are frustrated by the lack of use of these tools resulting from the inappropriate preparation of managers within business degree programs.

INTRODUCTION

Enrollment in business programs is shrinking partly due to a growing perception of irrelevance and inadequacy held by business leaders and conveyed to prospective students. Little (1991) warns, "OR [Operations Research] was conceived as an applied science focused on solving real problems.. If, for some reason we fail to solve practical problems in the future, I suspect we shall quickly be ignored." Render and Stair (1987) also direct, "Business schools must teach what future employers want and need." Failure to do so would be most unfortunate for society, not just business schools as "gaining a better understanding of how problems can be solved and decisions made is essential to our national goal of increasing productivity... Human minds, with computers to aid them, are our principle productive resource. Understanding how that resource operates is the main road open to us for becoming a more productive society and a society able to deal with the many complex problems in the world today." (Simon, Dantzig, Hogarth, Plott, Raiffa, Schelling, Shepsle, Thaler, Tversky, & Winter, 1987).

The three classes of influence which impede the mission of educators in these areas are the theoretical development in the respective fields, practices in the educational support industry, and societal changes. The next section of this paper discusses the impediments to progress just mentioned. Suggestions follow which address the problem, and research issues are raised to augment those suggestions.

THE CONSTRAINING INFLUENCES

Three classes of influence detract from the efforts of the quantitative academician. They are the theoretical development in the respective fields, the behaviors of the educational support industry, and fundamental societal changes.

Theoretical Development

The quantitative writer deals with ever increasing complexity. This forces extensive assimilation of information in preparation for advancement. This process involves a series of links, and if any fails, the strength of the chain is diminished. The reviewer charged with the responsibility of assessing the worthiness of offerings for publication is often faced with the following three options, given the time constraints imposed by other responsibilities. She may nearly duplicate the effort of the writer. Alternatively, she may admit to constraints, which prohibit complete evaluation, or render an opinion based on intuition and incomplete information. Consequently, the quantitative literature is full of misinformation.

Educational Support Industry Structure

The modern teacher of quantitative methods is "supported" by a publishing industry, which is less and less responsive to the mission of colleges. In no area is redundancy between editions and between authors more prevalent and there is a dearth of easily integrated relevant materials. Administrators find it hard to justify the increased budgets for release time needed to acquire skills to teach this material as it will be used in a business setting, or to obtain the required equipment.

Societal Changes

The impediments to effective delivery of quantitative education a fundamental societal change. This change involves the proliferation of programs and a decline in the requirements of the educational system. The combination of these events has resulted in a climate of market competition among America's colleges. Administrators are most sensitive to enrollments and the ability of their programs to

attract and keep students. While the level of preparation of students has been declining, the level of rigor which was a standard thirty years ago is no longer sustainable.

The forces outlined above combine to make the attainment of the stated objectives of quantitative programs infeasible. Some firms have resorted to developing in-house remedial programs to teach the skills they thought their new hires should already have attained.

REMEDIAL MEASURES

Scholars should be encouraged to evaluate the potential contribution of existing models. Review of such work would likely add insight, which could be applied to teaching efforts of the reviewer. Research, writing, and reviewing collectively leading to publication would be supportive of the objective of effective teaching.

Integrated approaches must be conceived for the development of instructional packages. The objectives of the quantitative courses must be identified, and materials including software and manuals must be developed in support of those objectives.

College administrators must realize that sporadic infusions of money, rather than reliable and continuous financial support, add to increased budget requirements. They must be taught to incorporate technological development into their long range planning processes and devise programs of investment, which extend over many years.

They must value the efforts of faculty involved in practical innovation. They must provide resources for these faculty to assist in the development of appropriate materials and procedures for teaching the practical arts of problem solving and decision making.

Professional societies must provide more outlets for work in the practical mechanisms, which facilitate transfer of quantitative tools and techniques to applied settings. They should exert influence with college administrators, advocating support for those activities which are responsive to this challenge, recognizing that the world needs legions of improved decision makers more than any other commodity.

Growth for its own sake must be abandoned as a criterion for success. Administrators must engage in determining the mix of educational services which is appropriate for the market of aspiring students and society as a whole.

RESEARCH SUGGESTIONS

A systematic program of study is suggested from the foregoing discussion. Studies should address issues such as aggregate skill/needs assessment and degree validity pressures for growth in terms of potential market share, budgeting processes, and administrator's perspectives on resourcing technology. Strategies for the implementation of computer assisted instruction (CAl), and the possible enhancement of decision simulations through the application of CAl must be investigated. That collation would support the operational research of evaluating the effectiveness of existing materials, and realizing the nature of the improvements, which ought to be pursued.

CONCLUSION

This paper has described a crisis associated with delivering education in quantitative methods, which is responsive to the needs of all the stakeholders associated with that process. It has emphasized that while the crisis is just now becoming apparent, the consequences of inattention become increasingly severe at an accelerating rate. The paper has made broad suggestions, which address components of the crisis, and most important, suggested areas of study, which would support appropriate refinement of the suggestions offered.

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