

Submission Title: Quantitative Decision Making: Objective Analysis of Alternatives in Educational Decisions

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Quantitative Decision Making: Objective Analysis of Alternatives in Educational Decisions

In an administrative capacity, educators are required to make numerous decisions regarding the organization, development, and maintenance of a successful curriculum and learning environment, which affect students, parents, faculty, staff, and the community. However, few educational administration programs contain the tools of decision making theory which are presented thoroughly in business administration curricula. As a result, administrators collect and compile extensive data on their schools as required by law and accreditation agencies, but make decisions based on opinions and intuition. Some of this is due to failures in administration preparation programs. Statistics, if taught at all, is focused on conducting research projects and dissertations rather than on applying skills to problem analysis, program and student evaluation, and quantitative decision making. Some school administrators also fear using models designed for business which consider only cost effectiveness rather than the unique social, emotional, and intellectual outcomes desired by educational institutions.

This presentation will include variations of decision making models applied exclusively to common educational decisions made at the school and district levels. Emphasis will be placed on the applicability of the models and the use of Microsoft Excel in data analysis and modeling outcomes. Specifically, the following topics will be covered and a list of their applicability to various educational decisions will be provided:

- Stokey and Zeckhouser's 5 step process for structuring a problem and making choices among competing alternatives
- Correlation to determine the strength of a relationship between factors
- ANOVA and t-tests in comparing the success of alternative programs
- Cost effectiveness and cost utility analysis to evaluate program utility and costs
- Prediction of future trends and needs based on historical data through trend fitting or Markov chains
- Decision game theory in solving conflicts of interest in the organizational setting

While none of these models will provide a definitive correct choice for a decision, they will provide the administrator with the tools to make an informed and supported selection.