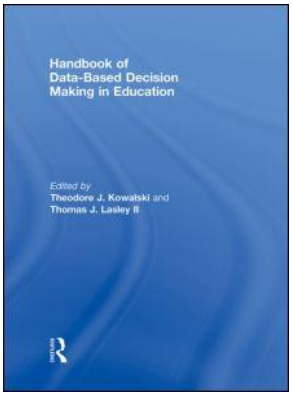

Handbook of Data-Based Decision Making in Education

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Issues of Recruitment and Selection from a Data-Based Perspective

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Issues of Recruitment and Selection from a Data-Based Perspective

Implications for Educational Leadership Programs

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Based on labor projections, the demand for and the supply of educational leaders is a topic of concern both for the public school setting and for educational leadership programs (Hecker, 2004; National Association of Elementary and Secondary School Principals, 1998). Public schools must re-staff existing positions vacated by turnovers as well as staff new positions created to accommodate increasing enrollments and organizational reconfigurations (Young, 2008). One vehicle for accommodating these needs is graduate education as provided by institutions of higher education.

Graduate education addresses these pressing needs in several important ways. First, graduate education provides a means to satisfy minimum certification requirements necessary for valid consideration as a candidate for leadership positions. For many leadership positions within the public school setting (e.g., principal, assistant superintendent, superintendent), advanced graduate coursework is required to meet state mandated certification requirements.

Second, performance of students within graduate programs may serve as a valid predictor for public school districts when selecting new employees. Empirical data are provided by grade point averages in graduate coursework, and experiential data are suggested by experiences encountered in practicum and supervised field projects. Subjective information can be obtained to inform data-based decision making within the selection context via references as provided by university and field supervisors.

To operate graduate level educational leadership programs, institutions of higher education must recruit and select potential students every year. Often overlooked in this operation of educational leadership programs is that recruitment and selection are related but separate administrative processes to be performed by most institutions of higher education. Student recruitment requires generating an applicant pool of potential program candidates.

In the past, recruitment may have been glossed over by many graduate programs. The modus operandi was to rely largely on "walk-in students" as the primary source

for generating an applicant pool. In recent years, some graduate programs have begun to use recruitment fairs and information sessions to attract applicants through providing data to inform decision making from a data-based perspective.

Once applicants are attracted to a specific program, as evident by providing required information for consideration, faculty must make selections from among those applicants making formal application. From a data-based perspective, selection, like recruitment, is viewed as an administrative process as opposed to an organizational event. Initial applicant pools are delimited by faculty according to paper credentials submitted by applicants, and formal admission invitations are extended on the basis of invited interviews.

However, both administrative processes (recruitment and selection) can be enhanced by using data to inform decision making on the part of all stakeholders. Inadequate recruitment and selection serves neither potential applicants nor graduate faculty well. As noted by Ivankova and Stick (2007), inadequate recruitment and selection processes are "not only painful and expensive for a student, but [are] also discouraging for faculty involved, injurious to an institution's reputation, and result in a loss of high level resources" (p. 94).

Indeed, the adequacy of recruitment and selection processes is determined, at least in part, by program completion rates. However, some research suggests that program completion in U.S. institutions of higher education may be as low as 50% (D'Andres, 2002; Dorn & Papalewis, 1997; Marcus, 1997). No doubt, these percentages could be improved through more informed data-based decision making from the onset.

To provide empirical information bearing on these administrative processes (recruitment and selection) from a data-based perspective is the focus of this chapter. More specifically, existing literature is reviewed from an individual as well as from an organizational perspective relative to data-based decision making. Based on this review, specific recommendations are made that have important implications for recruitment and for selection from a data-based decision approach.

Related Literature

It is no longer a controversial notion that data should be used to support organizational decision making (Picciano, 2006). In recent years, this stance has become commonplace in public schools and universities alike, largely due to the emphasis placed on more rigorous accountability in American education (Darling-Hammond, 2004; Picciano, 2006). The educational literature dealing with data-driven decision-making processes mainly concerns schools and school districts, a focus that is commensurate with the standards expected of schools by federal laws, particularly the No Child Left Behind Act of 2001 (U.S. Department of Education, 2002), state education departments, local boards of education, and funding agencies (Picciano, 2006). In contrast, our somewhat original focus contributes to the higher education context and, more specifically, to graduate programs in educational leadership and administration. We assume the position that integrating data and information into the processes of student recruitment and selection will enable university faculty and administrators to make informed decisions that support a program's progress and goals.

Although recruitment and selection are separate but related administrative processes for all programs focusing on educational leadership, it is important to note that these administrative responsibilities rely on a common core of information. This information can be used to drive data-based decision making relative to the procurement of required certifications/qualifications and to replenish applicant pools for employment considerations. For recruitment, potential applicants for programs in higher education are concerned about program content as well as about admission requirements, while faculty within institutions of higher education must rely on certain information to make informed selection decisions about admission to an educational leadership program. Consequently, research addressing both concerns of applicants and concerns of graduate faculty are reviewed in the following sections.

Data Concerns of Applicants

Decisions of individuals, as potential applicants for a graduate program in educational leadership, have been explored relative to several personal orientations purported to influence data-based decision making. Differentiating among these orientations are specific needs and salient variables suggested to influence decision making from a data-based perspective as found in the general recruitment/selection literature and as captured by different theories: objective theory, subjective theory, work itself theory (see Young, Rinehart, & Place, 1989). These theories focus on the following constructs: (a) economic incentives, (b) psychological needs, and (c) program requirements.

Economic Incentives

The importance of economic incentives on data-based decision making for applicants in general is encapsulated within the objective theory of decision making (Behling, Laborita, & Gainer, 1968). According to the objective theory of decision making, potential applicants are economic beings who seek to maximize their financial status in life through informed decision making relative to career choices among alternatives. Particularly appealing from the objective theory perspective within the recruitment context are economic advantages associated with various alternatives (e.g., career advancement, better job, higher salary) that can be fulfilled by graduate education in an educational leadership program.

Psychological Needs

In contrast to the objective theory involving financial incentives and viewing individuals as economic beings is the subjective theory (Judge & Bretz, 1992). The subjective theory emphasizes the psychological needs of individuals as potential applicants for graduate education in educational leadership. Important for the subjective theory is graduate program content bearing on psychological needs of

individuals as potential educational leaders. As psychological beings, individuals want to become enlightened about leadership, to increase their level of knowledge relative to this particular field of study, and to enhance their leadership skills in the field setting.

Program Requirements

Still different from either economic incentives or psychological needs are rational concerns of individuals within the recruitment process for educational leadership programs. That is, data are sought about admission and graduation requirements by individuals as potential applicants. Most importantly, potential applicants are concerned about what is required to be admitted and what is required to graduate relative to particular programs of study.

Research addressing these different theories (economic incentives, psychological needs, and program requirements) and different orientations of individuals as applicants (economic beings, psychological beings, or rational beings), as well as the salient variables (financial, program content, and admission criteria) purported to influence their decision making has received attention in the literature found in educational leadership publications. However, after reviewing this literature, only a single study was found addressing these variables within the graduate program context (i.e., Young, Galloway, & Rinehart, 1990), even though many studies have applied these theories to the attraction of employees in the public school setting (Newton, Giesen, Freeman, Bishop, & Zeitoun, 2003; Newton, Winter, & Keedy, 2000; Winter, Keedy, & Newton, 2001; Winter & Melloy, 2005). Within the single study addressing attraction for a graduate program in educational leadership, a recruitment brochure is used as an informational source to inform data-based decision making on the part of potential applicants (Young et al., 1990).

Manipulated specifically by Young and colleagues (1990) are both sex of potential applicants and contents of the recruitment brochure. Sex of potential applicants was manipulated to determine if females differed from males relative to their informational needs within the recruitment process. Contents of the recruitment brochure were varied to include the objective, subjective, or admission requirements.

No effect for sex of potential candidates was detected, suggesting that both females and males seek the same type of information to inform their decision making at the recruitment phase of the admission process for an educational leadership program. Most important for all potential candidates is the content of the recruitment brochure pertaining to admission requirements relative either to the objective theory or the psychological theory. Interestingly, these are the same data important to graduate faculty from a selection perspective relative to admission decisions.

Data Concerns of Faculty

Beyond these informational concerns of individuals, as applicants for recruitment, are those informational concerns of graduate faculty charged with gatekeeping functions

relative to admission to an educational leadership program. To delimit an initial applicant pool for admission to an educational leadership program, graduate faculty members rely on specific information similar to information sought by potential applicants. Among these sources of data, Malone, Nelson, and Nelson (2001) listed standardized test scores, prior academic performance, and reference information as being among the most salient sources of information.

Standardized Test Scores

For admission to an educational administration graduate program, standardized tests, typically one of two, are most likely used within the recruitment and selection process. One test is the Graduate Record Examination (GRE). GRE scores are disaggregated according to a verbal subtest and to a quantitative subtest although other subtests exist (i.e., analytical) and new subtests are emerging for this particular standardized measure (i.e., writing).

Less frequently used but still popular for educational leadership programs is the Miller Analogies Test (MAT). Outcomes from the MAT are provided according to raw scores and to percentile measures allowing comparisons across applicants and testing situations. Although some graduate programs require a specific standardized test (GRE or MAT), it is not unusual for this choice between standardized tests as a means for satisfying admission requirements to be determined by an applicant from a personal preference point of view.

For these standardized tests, specific attention is given in the published literature relative to these measures within the educational leadership context. From a data-based decision-making perspective, much of this attention has focused on validity rather than on specific required performance. As noted by Smith and Garrison (2005), "The existing research most often relies on statistical technology concerning 'variance' to communicate the power of statistical tests" (p. 633) for specific predictors.

Variance is communicated usually by a coefficient of determination reflecting the amount of variance shared between a predictor and a criterion measure. For the GRE, Young (in press) found that only the verbal subtest of the GRE accounted for significant variance when both the GRE verbal and GRE quantitative subtests are considered. The criterion variable in the above-cited study includes those applicants rejected, those students admitted but failing to graduate, and those students graduated.

With respect to the Miller Analogies Test for educational leadership programs, data exist to inform decision making. Young (in press) regressed only admission decisions (rejected or accepted) on MAT percentile scores. Results indicate that a statistically significant amount of variance in admission decisions for an educational leadership program could be accounted for by performance of applicants on the MAT.

Not to be overlooked in the recruitment and selection processes for educational leadership programs is that standardized tests are only part of the admission process that informs data-based decision making, even though great difference is

purportedly afforded these measures (Norton, 1994). Without a doubt, grade point averages and reference information come into play within the admission process from a data-based decision approach. Consequently, attention is refocused to these other sources of information relating to recruitment and to selection within the educational leadership context.

Grade Point Averages

As compared to standardized test scores, grade point averages provide additional information for data-based decision making. This point is echoed by publishers of the GRE: "Standardized test scores and prior grades measure overlapping but different aspects of educational attainment, and they have complementary strengths" (Educational Testing Service, 2004, p. 2).

Information about grade point averages is obtained from an analysis of transcripts submitted by applicants as part of the admission process. In conducting an analysis of transcripts for graduate program admission, grade point averages are computed several ways by programs in educational leadership. Attention is afforded to undergraduate (UGGPA) as well as to graduate grade point averages (GGPA) within the admission process, and this information is used to guide data-based decision making.

In general, undergraduate grade point averages are lower than graduate grade point averages and exhibit more variability. No doubt, this difference reflects, at least in part, maturational aspects of individuals as well as grading norms of universities. Undergraduates tend to be younger than graduate students, explore alternate majors, and become more focused as their educational career advances.

On the other hand, graduate students are experienced collegians, more directed on a specific area of study, and subjected to a different grading norm. Minimum acceptable performance for undergraduates is 2.0 in contrast with 3.0 for graduate education. This difference between undergraduate and graduate grade point averages has been noted in the professional literature as related to admission standards for graduate programs in educational leadership and administration.

In a survey of several hundred institutions (n = 450) addressing minimum admission requirements for graduate programs in educational leadership, Creighton and Jones (2001) found considerable variability across institutions of higher education. Indeed, 194 institutions require a minimum undergraduate grade point average of 3.00, 124 institutions require a minimum undergraduate grade point average of 2.75, and 132 institutions require a minimum undergraduate grade point average of 2.50. More recently, Dembowski (2007) surveyed 88 educational leadership programs about expectations for graduate grade point averages and reported "All of the programs required a Graduate GPA that ranged between 3.0–3.5" for admission.

Although standardized test scores and "grade point average represent quantitative measures in the decision making process" (Malone et al., 2001, p. 3), other variables (e.g., reference information) are considered by faculty members to delimit an initial applicant pool. With few or any exceptions most graduate programs collect reference

information about potential candidates. In the following sections, we address this information.

Reference Information

Unlike scores from standardized tests (GRE or MAT) and grade point averages reported by official transcripts, reference information can be obtained through a variety of formats. Included among these formats are letters of recommendation and standardized reference forms. With respect to these sources of information used to guide data-based decision making within the recruitment and selection process for graduate programs in educational leadership, many differences have been identified in the professional literature that have important implications for data-based decision making.

Take, for example, letters of recommendation; content may vary considerably depending on the reference source. The reference source could address either personal characteristics of applicants or professional competencies of applicants within these free-flowing formats. These sources of variation (i.e., reference source and reference content) make it difficult, at best, to obtain similar information about all candidates comprising a common applicant pool for a leadership program within any given year.

To address this problem from a data-based decision-making perspective, many graduate programs in educational leadership rely on standardized reference forms rather than letters of recommendation. However, even among standardized reference forms, variations exist that have implications for data-based decision making. Many of these differences are noted (Young, 2005).

For example, reference information on a standardized form can be either criterion-related (how this person performs relative to established criteria) or norm-referenced (how this person performed relative to known individuals). Independent of the anchor source for evaluation (criterion or norm) content of the reference information can vary. Contained in Table 26.1 are specific norm-referenced items used to delimit an initial applicant pool for a particular program in educational leadership.

To assess the validity of these items as constrained by the norm-referenced process in Table 26.1, an empirical analysis is reported (Young, 2005). Results of this analysis indicated that only two of these items are found to differentiate between those accepted and those rejected: research ability and work habits. For data-based decision making, this is enlightening information derived from empirical results as assessed for a particular program focusing on educational leadership.

Furthermore, information as provided for all the predictors (standardized test scores, grade point averages, and reference information) described in this section has been assessed from a singular perspective largely concerning the issue of validity. Although validity is the *sine qua non* requirement for usage from a data-based decision approach, it falls short in an important way. That is, it fails to provide any insight about how to use this information from a data-based perspective via specific decisional models. We next address different decisional models.

Table 26.1 Descriptive statistics and correlations among variables.

	M	*S.D.*									
Intellectual ability	13.36	1.88	1.00								
Education knowledge	13.22	2.13	.76	1.00							
Motivation	14.09	1.70	.79	.78	1.00						
Research ability	13.17	2.63	.57	.64	.59	1.00					
Maturity	13.68	1.89	.77	.80	.84	.61	1.00				
Work habits	13.90	1.76	.79	.81	.90	.63	.87	1.00			
Problem solving	13.51	2.00	.79	.80	.80	.64	.81	.81	1.00		
Verbal ability	13.33	2.11	.75	.79	.75	.60	.80	.76	.83	1.00	
Writing ability	13.02	2.25	.74	.77	.72	.67	.75	.76	.78	.85	1.00

Notes: All correlations are significant at the 0.01 level (2-tailed).
$N = 243$.

Source: Young, 2005.

Decisional Models for Data-Based Decision Making

Several decision models exist in the published literature that can be used to drive data-based decision making for attracting and selecting individuals as candidates in a graduate program focusing on educational leadership. All these models afford the ability to incorporate dissimilar information (standardized test scores, grade point averages, and reference information) to inform decision making on the part of graduate faculty performing a gatekeeping function. However, these models differ in important ways, have been used only recently for admission to educational leadership programs, and are labeled in the professional literature as follows: multiple cutoff model, compensatory model and eclectic model (Young, 2006).

Multiple Cutoff Model

Fundamental to the multiple cutoff method is that graduate education is a right rather than a privilege if all statutory requirements are met. That is, applicants must meet all minimum requirements to be considered admissible to an educational leadership program. According to this model, "performance on each dimension is examined separately, and underlying this model is the assumption that all must exhibit at least a minimum level of competency on each dimension" (Young, 2008, p. 224).

The multiple cutoff model is used frequently for certification programs and for admission to master's programs but less so for doctoral programs in educational leadership. It is particularly efficient when only statutory requirements as established by graduate schools and by specific leadership programs are set *a priori* (e.g., minimum requirements for standardized test scores, graduate grade point average [GGPA], undergraduate grade point average [UGGPA], and/or reference information) for recruiting and selecting candidates to a leadership program. Once

pre-established standards are met for all academic predictors, admission is automatic although still data-based.

Compensatory Model

For the compensatory model, a different approach to admission is provided from a holistic perspective. That is, a low score on one predictor can be offset by a high score on another predictor used from a data-based decision approach. For example, a low undergraduate grade point average can be overridden by exceptional performance on any other predictor (i.e., standardized test results, graduate grade point average, and/or reference information).

Of importance to the compensatory model is a single predicted score for each applicant across all predictors used to delimit an applicant pool. This score is based on the linear combinations of all predictor information used to delimit an initial applicant pool. However, this model fails to consider any statutory requirements that may have been established by graduate schools or by individual programs in educational leadership for admission considerations (i.e., minimum GPAs or minimum standardized test scores).

Eclectic Model

The eclectic model of decision making incorporates the strengths both of the multiple cutoff and the compensatory models. Within the eclectic model, specific statutory requirements can be included for some predictors (i.e., minimum GPAs and/or minimum standardized test scores) and variable performance outcomes can be included for other predictors with unspecified minimum performance expectations. This mixture of fixed and variable requirements for predictors is accomplished by considering admission to an educational leadership program as a process rather than as an event.

As a process, applicant pools are delimited initially on the basis of meeting all statutory requirements as per the multiple cutoff method. Subsequently, once these minimum requirements are met as per statutory requirements, further consideration is afforded to applicants from a compensatory model perspective utilizing a data-based decision-making approach for admission. Most importantly, if both statutory and variable standards exist for admission to a graduate program, then data derived from the eclectic model can be used by faculty to inform individuals of their likely acceptance as well as possible remedial actions for improving their likely acceptance when rejected.

Modeling the Eclectic Approach

To illustrate the utility of the eclectic model from a data-based decision-making approach, a specific example is used from the published literature that considers only

quantitative measures involving GRE and GPAs as suggested by Malone and colleagues (2001) to reflect quantitative measures within the decision-making process. Within this example (Young, 2006), statutory requirements are established for grade point averages. These statutory requirements are rooted with mid-point values as reported by Creighton and Jones (2001) for undergraduate grade point averages (GPA = 2.75) and as suggested by Dembowski (2007) for graduate grade point averages (3.25).

Varying in this example, from the compensatory perspective, are standardized scores on the GRE as compensatory factors within the decision-making process. To determine the relative value of the GRE as measured by specific subtests (GRE Quantitative and GRE Verbal) for admission as a criterion variable (rejected or accepted), a regression analysis was performed. Results of the regression analysis indicate that the verbal subtest scores are more important than quantitative subtest scores in light of statutory requirements for grade point averages (UGGP 2.75 and GGPA 3.25).

As applied to the eclectic decision-making model involving data-based decision making for the purpose of illustration, different scenarios are presented in Table 26.2 for an applicant likely rejected given the statutory requirements for grade point averages. The first equation involves the specific linear combination of predictor variables found to differentiate between those rejected (coded as "0") and those accepted (coded as "1") based on their academic profiles (see Table 26.2).

Because those graduate students who are rejected after exhibiting satisfactory performance on statutory requirements (UGAP, 2.75 and GGPA, 3.25) can most likely improve their likelihood of acceptance by increasing their performance on the GRE, two different outcomes are assessed: increasing GRE quantitative subtest scores or increasing GRE verbal subtest scores (see Table 26.2). According to these data, as presented in Table 26.2, only one of these options is likely viable given these specific constraints. This means that the applicant in question must increase the verbal subtest score to 70% (new predicted score = .51) because a 99% performance on the quantitative subtest still renders this applicant as more similar to those rejected

Table 26.2 Illustration of the eclectic model (Young, 2006).

Normative data
Prediction equation: Y = −.583 + .001(GRE Q%) + .006(GRE V%) + .045(UGGPA) + .172(GGPA).
Predicted outcome: .44 = −.583 + .001(GRE Q%, 42) + .006(GRE V%, 45) + .045(UGGPA, 2.75) + .172(GGPA, 3.25).
Increases in GRE verbal (70%)
Predicted outcome: .51 = −.583 + .001(GRE Q%, 42) + .006(GRE V%, 70) + .045(UGGPA, 2.75) + .172(GGPA, 3.25).
Increases in GRE quantitative (99%)
Predicted outcome: .46 = −.583 + .001(GRE Q%, 99) + .006(GRE V%, 50) + .045(UGGPA, 2.75) + .172(GGPA, 3.25).

Source: Young, 2006.

(predicted score = .46) than to those accepted (minimum predictor score = .50) in light of satisfying minimum statutory requirements.

Conclusions

Within this chapter, data-based decision making is upheld as necessary to the functioning and progress of graduate programs in educational leadership and administration. We have addressed both the perspective of applicants and of graduate faculty. Common to both perspectives is a coalescence of informational needs to direct data-based decision making for these stakeholders within the recruitment and the selection process, albeit from different perspectives. Potential applicants are concerned about academic requirements for admission, and faculty members rely on this same information to delimit an applicant pool.

Most important among these requirements for guiding decision making are grade point averages, standardized test scores, and reference data. For each of these sources having implications for attraction as well as for selection, the existing literature was reviewed relative to current knowledge from a data-based decision perspective as applied to graduate education in educational leadership. As a means of using this information from an applied perspective in the field setting, different decisional models were addressed.

Included among these methods for processing data are the multiple cutoff, compensatory, and eclectic models. Differentiating among these decisional models is the ability to address statutory requirements as well as variable performances of applicants on the predictors used to attract and to delimit applicant pools. Most flexible among these decisional models is the eclectic approach. Within the eclectic approach, statutory requirements can be imposed early within the decision-making process, and other information can be considered after statutory requirements have been met by potential applicants.

To illustrate the application of the eclectic model for data-based decision making in the field setting, a specific case was provided. Contained in this example for applicants to a graduate program in educational leadership is information about probable acceptance as well as likely rejection; this was followed by recommended remediation if rejected on the basis of pre-established statutory requirements (e.g., GPAs) and/or variable performance on a standardized test (e.g., GRE). By using a data-based decision approach for applicants as well as for graduate faculty, decisions are depersonalized and hence objectified, and efficiency of decision making should be enhanced.

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