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A Value-Added Approach to Program Assessment in Higher Education:

Examination of an Educational Leadership Preparation Program

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Abstract

The purpose of the study was to advance a model for evaluating educational administrator preparation programs at the individual course level in a Texas university. Results indicated that, of the two preprogram and seven program core principal preparation courses examined, only two had a significant impact on the pass rate on the TExES Principal Certification Exam. Findings revealed that courses titled “Programs and Procedures in Supervision” and “Public School Law” were significant predictors of student success on the state-mandated exam. Although findings derived from this specific study cannot be generalized beyond the specific program examined, the model itself is generalizable and can be used to evaluate a variety of university programs. Implications for immediate implementation of the model are recommended and suggestions for future advancement of the model are discussed.

Key Words: Program Evaluation
Leadership Preparation
Valued Organizational Outcomes
Educational Leadership
Improved Teaching Processes
Value Added

A Value-Added Approach to Program Assessment in Higher Education:
Examination of an Educational Leadership Preparation Program

Higher education professors have operated with virtual academic freedom for many years. Such latitude has resulted in criticism levied at the quality of education provided to at the university level. One such report in the public light, a 20/20 investigative report, claimed that professors have limited contact with students, that good teaching is not rewarded, and that tenure is generally granted only for research and publication (ABC, 2000). With reports as these on the rise, educators who prepare public school administrators are becoming subject to increased scrutiny from the public, as well as their legislators, during a time corresponding with one of the most sustained periods of criticism and reform in American education (Donaldson, 2001).

Indeed, our legislative hallways echo with calls for accountability, “high stakes” testing, and outcomes-based promotion and graduation among public school students. An overt example of the demand for increased accountability is illustrated in districts that have begun to tie principals’ contracts to test scores. Consequently, principals’ reputations are forever linked with the public “report cards” of their school’s performance. As a result, a crisis in school leadership is becoming apparent as indicated by increasing principal turnover, a shrinking pool of quality candidates to fill the position, and a critical shortage of capable candidates interested in principal’s work (RAND, 2003).

Reform Movement in Education

In response, departments of educational leadership are becoming increasingly compelled to reform preparation programs at the university level in a manner consistent

with the “improvement movement” taking place in K-12 public schools. Coupled with mandates of the No Child Left Behind (NCLB) Act, universities are placing strong emphasis on using knowledge and skills of practitioners from K-12 settings to ensure that the preparation received at the university level is relevant and aligned with current practice (Andrews & Grogan, 2001). As a result, mutually dependent relationships between universities and school districts are strengthening as K-12 schools benefit from free expertise, counsel, and labor provided by university faculty and students; and universities benefit from participating in “authentic” settings where students can observe, participate, share, and network (Wallace, 2001).

In addition to strengthening partnerships with K-12 public schools, university-based educator preparation programs are beginning to experiment with new program designs grounded in teaching and learning processes. For example, some university programs have abolished the pre-set required numbers of courses in its programs, and replaced this core with personalized, relevant training topics. This practice is making the practitioners’ curriculum possible with training topics targeting research and organizational skills, as well as cultural, ethical, and political dimensions of schooling. The jury is still out in regards to the impact of these programs, as there is scant empirical evidence to justify their effectiveness (English, 2003).

Budget cuts in higher education are also becoming more prevalent as repeated calls for public accountability are increasing. Because student achievement is the bottom line, reform efforts are also largely data-driven to produce evidence reflecting the poignant theme of accountability (Priest, 2001). Thus, it is imperative that university administrators examine the effectiveness of educator preparation programs not only to

maintain funding and sustain a foothold in the competitive marketplace, but also to justify and transform this era of reform into best practices and student success.

Historical Perspective of Program Evaluation

Program evaluation is well developed, encompassing various fields from education (Nichols & Steffy, 1999) to business (Brinkerhoff, 1987). Ralph Tyler (1949), a pioneer of program evaluation, formulated an objective-based approach to this concept. From 1933 to 1941, Tyler studied alternative teaching methods in secondary education focusing on: defining appropriate learning objectives, establishing useful learning experiences, organizing learning experiences to obtain a maximum cumulative effect, and evaluating curriculum in order to revise ineffective practices (Worthen & Sanders, 1987).

In the mid 1950s Bloom, Englehart, Furst, Hill, and Krathwohl (1956) published *The Taxonomy of Educational Objectives*, which served as a framework for classifying student learning outcomes. Subsequently, in the 1960s, evaluators began to take a holistic view of teaching and learning in which a set of components such as student performance, goals and objectives, and the learning environment, interacted to produce learning outcomes (Fitzpatrick, Sanders, & Worthen, 2003). To improve the system's performance, Dick and Carey (1978) included data collection feedback as an essential aspect of evaluation. Data included student performance, student attitude, and information about instructional management. Cronbach (1963) and Scriven (1967) distinguished this type of evaluation from others and titled the concept as formative evaluation. The concepts of instructional systems and formative evaluation are largely components of what we now call outcomes assessment. Pieces of this thinking can be found in the minimum competency testing movement of the 1970s, the standards

movement of the 1980s, the accountability movement which began in the early 1990s (Carey & Gregory, 2003), and recent developments in interactive and impact evaluation (Rogers, 1999).

Process of Program Evaluation in Colleges of Education

To increase educational programs' integrity, Colleges of Education often solicit evaluations of their preparation programs to maintain accreditation through agencies such as the National Council for Accreditation of Teacher Education (NCATE) and the Southern Association of Colleges and Schools (SACS). In NCATE's performance-based system, accreditation is based on a College's ability to demonstrate teacher candidate's mastery of content knowledge and their subsequent ability to teach effectively (NCATE, 2003). In comparison, universities seeking accreditation from SACS do so under the following guidelines: "the institution must evaluate its success with respect to student achievement in relation to purpose, including, as appropriate, consideration of course completion, state licensing examinations, and job placement rates" (SACS, 2003, p.16).

However, there is no direct link connecting individual preparation courses to student performance on the criteria outlined by either accreditation agency. Results obtained from these highly qualitative evaluations (e.g. SACS, NCATE) are loosely coupled, at best, with individual courses and provide little guidance to course instructors that comprise the total program. With the mismatch between what is evaluated (overall program goals) and what should be evaluated (individual courses aligned with the current public education system), it is no surprise that evaluation results are often neglected and recommendations difficult to implement.

Further, the quality of preparatory programs is primarily based upon the results of pre-service educators' performance on an examination of educator standards. Passing the exams required to obtain a professional educator certificate, and its content assesses professional knowledge and skills deemed important by practicing educators in the field. For Texas institutions to remain in good standing, 70% of the students, as an aggregate and in each defined subgroup taking the initial Texas Examination of Educator Standards (TExES), must score a scaled score of 230 out of 300 possible points (Accountability System for Educator Preparation, 2006). The percentage required for a passing score is set to rise in years to come. Institutions that enroll highly diverse populations and students considered "at-risk" consciously place themselves at risk if students in any subgroup do not achieve a 70% group success rate. As a result, there is greater reward for accepting students who are capable of passing the examination and denying enrollment to those students considered incapable. This practice is the antithesis to the tenets of the reform movement. In accordance with the NCLB Act (2001), it is imperative that educational institutions prepare *all* students to meet the rigorous demands of the certification exam. With the call for greater accountability mounting, Colleges of Education must practice what they preach: all students can learn and achieve success and it is the responsibility of the institution to ensure that they do exactly that. The urgency for an improved means to evaluate the utility of educator preparation programs is of national importance and relevant within the context of current reform efforts.

A Practical, Program-Specific Model for Program Evaluation at the University Level

One Texas institution realized the current evaluation system is simply inaccurate and insufficient for determining the effectiveness of the university's principal preparation

program. This was evidenced by the cyclical manner in which professors of the educational administrator preparation program commonly conduct yearly evaluations: instructors unanimously agree upon a set of program goals and submit these broad goals to the department head. The goals are then filed away and not consulted again until the beginning of the ensuing academic year, when the cyclic process begins anew. It is assumed that most educational administration programs follow a similar pattern.

Cognizant of the obvious shortcomings of the current evaluation process, a new value-added model for evaluating the effectiveness of the educational preparation programs was developed. The conceptual model displayed in Figure 1 and the measurement model outline displayed in Figure 2 provides research-based, data-driven conclusions regarding the effectiveness of the individual components of preparation programs.

Figures 1 and 2 About Here

Obviously, there are multiple implications for such a model. Namely, one can determine the effectiveness of each course within the context of the overall program, something that has not been accomplished in the past. Similarly, if alumni are followed after program completion, one can determine the effectiveness of each course in the context of subsequent impact on K-12 student outcomes. No longer can university preparation programs be satisfied with student performance only on the certification exam. The certification exam is merely an indication of transformation, not an end. The real evaluation of the preparation program does not begin until the student has entered the

workforce. The value that a university preparation program adds to a graduating student regarding making the person a better teacher and leader, which impacts the type of employment a person may qualify for, is of utmost importance. The true nature of value-added in the context of this paper is to determine how much value the preparation program adds to each graduate. In more succinct terms, the model will allow universities to determine if one university is doing a better job of preparing educators than another. Questions such as, Are specific courses needed? Which courses are doing a good job in preparing school leaders? Which courses should be redesigned? can be resolved. The model itself can serve as a mechanism with which to evaluate *any* program and, thus, allows university personnel to truly determine the impact of each individual component of a program and the efficacy of the overall program.

With the aim of improving program effectiveness, the purpose of this paper is to advance a value-added model to evaluate educator preparation programs at the individual course level using a data-driven approach. In order to demonstrate its effectiveness, the corresponding model displayed in Figure 1 was utilized to answer the following research questions:

Research Questions

- 1) Do pre-program entry variables predict success on the Principal Certification Exam among pre-service principals at a specific, selected Texas university?
- 2) Which university preparation program courses predict student success on the Principal Certification Exam among pre-service principals at a specific, selected Texas university?

Limitations

Results generated from the aforementioned research questions depend on the specific university students in the program, the courses in the specific program, and outcomes such as TExES scores and/or subsequent effects on K-12 student outcomes of students directly linked to program graduates. As such, results from this example are of practical interest to the targeted specific, selected Texas university alone. However, the model and process by which results are generated are of direct and dire relevance to all educator preparation programs concerned with program revision and improvement.

Method

Participants

Participants included 109 pre-service principals in a Texas university who completed the TExES Principal Certification Exam in the 2002-2003 academic year. Of the 109 participants, 67 (61.5%) were female, while 42 (38.5%) were male. Furthermore, study participants included 85 (78%) identified as Anglo, 21(19%) identified as Hispanic, and 4 (3%) of the participants were African-American.

Variables Examined

Variables included pass/fail status among all participants on the TExES, Graduate Record Exam (GRE) scores, and final course grades obtained in each of the university-required core principal preparation program courses. Table 1 further defines the variables examined in the study.

Table 1 About Here

Procedure/Data Analysis

TExES Principal Certification Exam data were obtained from the university educator certification office. Final course grades for each core program course and GRE scores were acquired from the university's Student Information System (SIS).

Exploratory data analyses were conducted to determine if independent variables should be collapsed into fewer categories in order to gain insight into the effectiveness of the principal preparation program as a whole. For example, out of 109 students, Public School Law had two students earning a grade of "C" while Human Growth and Development had only one student who earned a grade of "C." Combining those who earned a "C" with the students who earned a "B" would be equally informative. Because logistic regression is especially effective in answering questions that involve predicting the probability that something will occur, logistic regression was employed to ascertain which variable(s) best predicted pass rates among pre-service principals on the TExES (Demaris, 1992).

The present study defined a dichotomized dependent variable as passing/not passing the state mandated TExES and three groups of independent variables. Of the independent variables examined, Model 1 included variables relating to pre-program entry (GRE scores), Model 2 included student results from each of the required courses in the pre-service principal preparation program and Model 3 included significant predictor variables derived from the pre-program and program models (Models 1 and 2). Thus, for

each research question, one logistic model was estimated to identify factors that predict passing the state-mandated certification exam.

All main effects and two-way interactions were considered. Results from the log-likelihood test revealed that the addition of interaction terms would not improve the model fit for either of the models examined and subsequently, were not included in the results reported below. In addition, demographic variables (e.g., ethnicity) were not included in the analysis due to the lack of variability among the participants in the study. An alpha level of .05 (the probability of a Type I error) was maintained for all analyses. All analyses were completed using the SAS 8.1 software package.

Results

TExES Principal Certification Exam

The TExES mean score among all participants was 255.82 (SD = 15.26) with scores ranging from 215 to 287 (a scaled score of 230 is required to obtain certification). Table 2 reports performance among both male and female students on each sub domain, as well as the overall score. Interestingly, female principal candidates scored significantly higher than male counterparts on domain 2 ($t(107) = 3.04, p = .003$). Bonferroni adjustments were made for multiple comparisons. The overall pass rate for the TExES was 87.2% on first attempts among all participants.

Table 2 About Here

Table 3 displays the percentage distribution of independent variables included in the study. Regarding pre-program entry, GRE scores were evenly split and cut at the

median. With regard to principal preparation program variables, the majority of the students, over 75%, received an “A” in program coursework.

Table 3 About Here

Spearman Rho correlations among variables are displayed in Table 4. Statistically significant correlations were found between GRE quantitative scores and Public School Law at .216 ($p < .05$); and between Programs and Procedures in Supervision, and Human Growth and Development at .510 ($p < .001$). Similarly, students who performed well in Human Growth and Development also performed well in Procedures in Supervision. Further, GRE scores, Procedures in Supervision, Public School Law, and Instructional Leadership share a statistically significant positive relationship with student performance on TExES certification exams. Note, however, that correlation does not necessarily imply causation.

Table 4 About Here

Pre-Program Variables

Research Question 1

Do preprogram entry variables predict success on the TExES among preservice principals at a selected Texas university?

Table 5 displays the logistic model utilized to determine if pre-program entry variables influenced student performance on the TExES. Both GRE verbal and quantitative scores were initially entered into the model. However, based on the change

in the -2 Log Likelihood test, it was determined that dropping the GRE quantitative variable would significantly improve overall model fit ($\chi^2_{(1)} = 11.52, p < .01$).

Table 5 About Here

In the model, estimates of odds ratios are given in terms of the increase of one unit change of the independent variable and can be found in the last column of Table 5. The odds ratio for GRE verbal is 13.435, which means that students scoring above the median cut score on GRE Verbal increase their odds of passing the TExES by a factor of 13.435, net of the effect of the remaining variables (Norusis, 1994). The model predicts 86.7% of the responses correctly.

Probabilities associated with scoring above and below the median cut score on the GRE verbal exam are found in Table 6. Results reveal the probability of passing the TExES are 98% for those scoring above the median cut score of 410, while the probability of scoring below the median cut score is only approximately 77%.

Table 6 About Here

Program Variables

Research Question 2

Which university preparation program courses predict student success on the TExES Principal Certification Exam among preservice principals at a selected Texas university?

Initially, a full model was considered to include student performance in each of the core courses that shared a significant correlation with student pass/fail status on the TExES (See Table 3). Of courses considered, only Procedures in Supervision and Public School Law were significant predictors at the $\alpha = .05$ level. It was determined that dropping Instructional Leadership from the model improved model fit and classification rate.

Table 7 reveals that students maintaining an “A” in Procedures in Supervision were 11.467 times more likely to pass the TExES when compared to the reference group of students maintaining a “B.” In addition, students receiving an “A” in Public School Law were predicted to increase the odds of passing the TExES by a factor of 6.476 when compared to students maintaining a “B” or “C.” The model predicted 89.3% of participants correctly.

Table 7 About Here

Table 8 reports the predicted probability of passing the TExES based on student performance in courses derived from Table 6. The probability of passing the certification exam among students maintaining an “A” in both courses is approximately 98%. In contrast, the predicted probability of passing the TExES among students maintaining a “B” in Procedures in Supervision and a “B” or “C” in Public School Law is only approximately 43%.

Table 8 About Here

The degree to which predicted probabilities agree with actual outcomes was determined by results of the Gamma statistic of .8560 for the model in Table 6. It can be said that 85.60% fewer errors were made in predicting which of two participants would pass the TExES by using the estimated probabilities than by using chance alone.

Finally, a model consisting of significant predictor variables from each model above was calculated to determine if an improved model could be fit to the data. Initially, GRE verbal, Procedures in Supervision, and Public School Law Public School Law were significant predictors, while GRE verbal was not. The results of the -2 Log likelihood χ^2 test ($\chi^2_{(1)} = 17.05, p < .01$) further revealed that eliminating GRE verbal from the model significantly improved model fit. Based on these results, it was determined that among variables examined, Procedures in Supervision and Public School Law were the most significant predictors predicting the passage of the TExES Principal Certification Exam among pre-service principals.

Discussion

The purpose of the study was to advance a quantitative, value-added model for evaluating higher education programs. A principal preparation program was examined comparing individual course grades to TExES outcomes to this end. Findings indicated that, of the seven core principal preparation courses examined, only two had significant impacts on the pass rates on the TExES: Procedures in Supervision and Public School Law.

A plausible explanation for this finding is that full-time professors have consistently taught each course for a number of years. In contrast, the remaining courses, which were not statistically significant predictors of the certification exam scores, were

taught mainly by adjuncts. Although the adjuncts examined maintain an active partnership and open communication in public schools, the rigor of courses and assignments are called into question.

Grade distributions found in Table 1 show that more than 75% of all grades given in the core courses during the timeframe of the study were “As.” Note that there were less “As” given in Procedures in Supervision and Public School Law than in the remaining core preparation courses, which indicates that grades earned discriminated between student performance. While one could argue that grade inflation, consistently mentioned in the literature, is prevalent among the remaining courses, it would be somewhat premature to do so without examining the course content and exams utilized by the part-time instructors.

Further, to gain a complete understanding of the program and enhance the educational development of both students and faculty, one must collect data on principal’s performance in the field. Once this data is included into the current model (Figure 1), university personnel can then determine the total impact, if any, that each course has on the principal’s academic preparation once she/he is practicing in a school setting. In other words, it is highly likely that while a course may not influence student performance on the certification exam, it may significantly affect the principal’s performance in the field.

Conclusion

While findings derived from the model are of grave importance for the university that participated in the study, perhaps of greater significance is the utility of the model for evaluating programs in other institutions of higher education. It is recommended that

program administrators employ the model utilized in this study to determine the current status of their program. Use of this model will allow those responsible for assessment activities to enhance their understanding of how student or faculty development is affected by various educational policies and practices.

Future Research

Work is now underway to advance the model to include the principal's performance in the field in addition to the pre-program and program variables discussed. It is the researcher's opinions that one must add the field-based dimension in order to truly understand the overall efficacy of the program. This groundbreaking work goes well beyond the loosely coupled approaches of evaluation that are currently employed in most program evaluations in Colleges of Education.

Additional research is recommended in K-12 settings to determine the impact individual courses have on elementary and secondary students passing the state-mandated "high stakes" exams. In an era of extensive educational reform, this model can help fill the void by quantitatively linking university coursework with K-12 outcomes and ultimately better ensuring that the academic needs of all children are met so that, truly, no child is left behind.

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Table 1

Definition and Measures of Variables Examined in the Study

| Variable | Variable type | Definition (Bold = Course Title) | Measure |
|------------------------------------|--|---|--|
| TEXES Principal Certification Exam | Dependent Variable Output | The TEXES Principal exam is a multiple-choice exam designed to measure the requisite knowledge and skills that a beginning principal must possess. The test includes both individual items and clustered decision sets based on real-world situations faced by school principals in elementary, middle school, and high school settings. The exam consists of three domains, which include School Community Leadership, Instructional Leadership, and Administrative Leadership. The effective score is a total test scale score ranging from 100-300. The minimum passing scaled score is 240 (State Board of Educator Certification, 2003). | Measured as Pass/Fail 0 = Fail 1 = Pass |
| GRE Verbal | Independent Variable Input | The verbal section of the GRE measures ones ability to analyze and evaluate written material and synthesize information obtained from it, to analyze relationships among component parts of sentences, to recognize relationships between words and concepts, and to reason with words in solving problems. The verbal score is reported on a 200-800 score scale, in 10-point increments. | Dichotomized at the Median Median = 410 1 = 200-410 2 = 411-800 |
| GRE Quantitative | Independent Variable Input | The quantitative section of the GRE measures basic mathematical skills, ones understanding of elementary mathematical concepts, and ability to reason quantitatively and solve problems in a quantitative setting. The quantitative score is reported on a 200-800 score scale, in 10-point increments. | Dichotomized at the Median Median = 440 1 = 200-440 2 = 441-800 |
| PSY 5043 | Independent Variable Process | Human Development. A lifespan survey of the development of human beings from conception to death. Topics include research and theory into physical, cognitive, social, and personality development in each of the different age groups: prenatal, infancy, childhood, adolescence, and adulthood (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B = 3 |
| EDAD 5073 | Independent Variable Process | Programs and Procedures in Supervision. Pertains to the philosophy, organization, and administration of supervision of both elementary and secondary schools (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B = 3 |
| EDAD 5083 | Independent Variable Process | Administration of Elementary and Secondary School. Study of the organization and administration of elementary and secondary schools (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B = 3 |
| EDAD 5093 | Independent Variable Process | Public School Law. Study of the constitutional provisions, statutory laws, court decisions, and regulations governing public schools with special reference to Texas and federal relationships (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B & C = 3 |
| EDAD 5153 | Independent Variable Process | Administration and Supervision of Special Services. Study of the organization, administration, and supervision of special, compensatory, and auxiliary educational programs and services (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B & C = 3 |
| EDAD 5163 | Independent Variable Process | Instructional Leadership. A study of the instructional leader's duties and responsibilities (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B & C = 3 |
| EDAD 5393 | Independent Variable Process | Processes in Educational Leadership. Analysis of skills and techniques of administrators on modern schools, with emphasis on democratic leadership, teacher-administrator and relationships, group processes, and evaluation of administrative programs. Techniques of curriculum change and innovation (Tarleton State University, 2003). | Students' Final Course Grade A = 4 B = 3 |

Table 2

Means Score Comparison Among Male and Female Student Performance on the

TExES Principal Certification Exam

| <u>Gender</u> | <u>Total exam</u> | | <u>Results of t-test</u> |
|---------------|-------------------|-------|------------------------------|
| | M | SD | |
| Female | 259.18 | 14.48 | $t_{(107)} = 3.01, p = .003$ |
| Male | 250.45 | 15.10 | |

Domain 1
**School and Community
Leadership**

| | M | SD | |
|--------|--------|-------|-----------------------------|
| Female | 259.94 | 16.42 | $t_{(107)} = .85, p = .396$ |
| Male | 256.38 | 27.22 | |

Domain 2
Instructional Leadership

| | M | SD | |
|--------|--------|-------|------------------------------|
| Female | 258.36 | 18.20 | $t_{(107)} = 3.04, p = .003$ |
| Male | 247.33 | 18.78 | |

Domain 3
**Administrative
Leadership**

| | M | SD | |
|--------|--------|-------|------------------------------|
| Female | 258.91 | 22.97 | $t_{(107)} = 1.24, p = .215$ |
| Male | 253.57 | 15.56 | |

Table 3

Distribution of Independent Variables (Percentages)

| Variable | % Scoring | Valid N |
|--|---|---------|
| Pre-Program Entry | | |
| GRE Verbal Scores | 49% Scoring above median | 109 |
| GRE Quantitative Scores | 49% Scoring above median | 109 |
| Principal Preparation Program Courses | | |
| Human Growth & Development | 78% Received an "A" (Reference group = B) | 109 |
| Procedures in Supervision | 75.5% Received an "A" (Reference group = B) | 109 |
| Administration of Secondary and Elementary Schools | 89.4% Received an "A" (Reference group = B) | 109 |
| Public School Law | 68% Received an "A" (Reference group = B or C) | 109 |
| Administration of Special Services | 86% Received an "A" (Reference group = B or C) | 109 |
| Instructional Leadership | 96% Received an "A" (Reference group = B or C) | 109 |
| Processes in Educational Leadership | 83% Received an "A" (Reference group = B) | 109 |

Table 4

Spearman Rho Correlations Between Pre-Program, Program Variables, and Pass/Fail Status of the TExES Principal Certification Exam

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------------|--------|--------|--------|--------|--------|-------|------|-------|------|------|
| Pass/Fail TExES Exam (1) | 1.00 | | | | | | | | | |
| GRE Verbal Score (2) | .314** | 1.00 | | | | | | | | |
| GRE Quantitative Score (3) | .379** | .391** | 1.00 | | | | | | | |
| PSY 5043 (4) | .137 | .400** | .226* | 1.00 | | | | | | |
| EDAD 5073 (5) | .455** | .191 | .288** | .510** | 1.00 | | | | | |
| EDAD 5083 (6) | .080 | .219 | .201 | .088 | .229* | 1.00 | | | | |
| EDAD 5093 (7) | .418** | .312** | .216* | .293** | .322** | .087 | 1.00 | | | |
| EDAD 5153 (8) | -.079 | .135 | .015 | -.011 | -.007 | .071 | .102 | 1.00 | | |
| EDAD 5163 (9) | .228* | .189 | .194 | .214 | .252* | .110 | .168 | -.090 | 1.00 | |
| EDAD 5393 (10) | -.008 | -.126 | .139 | .164 | .172 | -.063 | .106 | .082 | .049 | 1.00 |

** . Correlation is significant at the .01 level (2-tailed)

* . Correlation is significant at the .05 level (2-tailed)

Table 5

Results of Regressing GRE Verbal on the Pass/Fail Status of the TExES Principal Certification

Exam

| Predictor | β | <i>SE</i> β | Wald's χ^2 | <i>df</i> | <i>p</i> | e^β (Odds ratio) |
|------------|---------|-------------------|-----------------|-----------|----------|---------------------------|
| GRE Verbal | 2.598 | 1.068 | 5.916 | 1 | .015 | 13.435 |
| Constant | -1.412 | 1.223 | 1.332 | 1 | .248 | .244 |

| Test | χ^2 | <i>df</i> | <i>p</i> |
|--------------------------|----------|-----------|----------|
| Overall Model Evaluation | | | |
| Likelihood ratio test | 10.509 | 1 | .001 |
| Score Test | 9.904 | 1 | .002 |
| Wald Test | 5.915 | 1 | .015 |

Table 6

Predicted Probability of Passing the TExES Principal Certification Exam by

GRE Verbal Scores

| GRE verbal $\beta = 2.598$ | Intercept $= -1.412$ | Predicted probability of passing the TExES principal certification exam |
|-----------------------------------|-------------------------|---|
| 1 = Scoring Above Median | -1.412 | .9777 |
| 2 = Scoring at or Below Median | -1.412 | .7659 |

Table 7

Results of Regressing Core Preparation Courses on the Pass/Fail Status of the TExES

Principal Certification Exam

| Predictor | β | <i>SE</i> β | Wald's χ^2 | <i>df</i> | <i>p</i> | e^β (Odds ratio) |
|---------------------------------------|---------|-------------------|-----------------|-----------|----------|---------------------------|
| Procedures in Supervision (A v. B) | 2.439 | .750 | 10.575 | 1 | .001 | 11.467 |
| Public School Law (A v. B or C) | 1.868 | .759 | 6.065 | 1 | .014 | 6.476 |
| Constant | -.312 | .508 | .378 | 1 | .539 | .732 |
| Test | | | χ^2 | <i>df</i> | <i>p</i> | |
| Overall model evaluation | | | | | | |
| Likelihood ratio test | | | 27.896 | 3 | .001 | |
| Score Test | | | 33.692 | 3 | .001 | |
| Wald Test | | | 17.783 | 3 | .001 | |
| Goodness-of-fit test | | | | | | |
| Hosmer & Lemeshow | | | .017 | 2 | .991 | |

Table 8

Predicted Probability of Passing the TExES Principal Certification Exam by Course Final

Grades

| * Procedures in Supervision final grade $\beta = 2.439$ | * Public School Law final grade $\beta = 1.868$ | Intercept = -.312 | Predicted probability of passing the TExES principal certification exam |
|---|---|----------------------|---|
| 4 (A) | 4 (A) | -.312 | .9813 |
| 4 (A) | 3 (B or C) | -.312 | .8935 |
| 3 (B) | 4 (A) | -.312 | .8257 |
| 3 (B) | 3 (B or C) | -.312 | .4225 |

Note. *Letter grades in parenthesis

Figure Caption

Figure 1. Conceptual Model to Measure Educator Preparation Program Effectiveness.

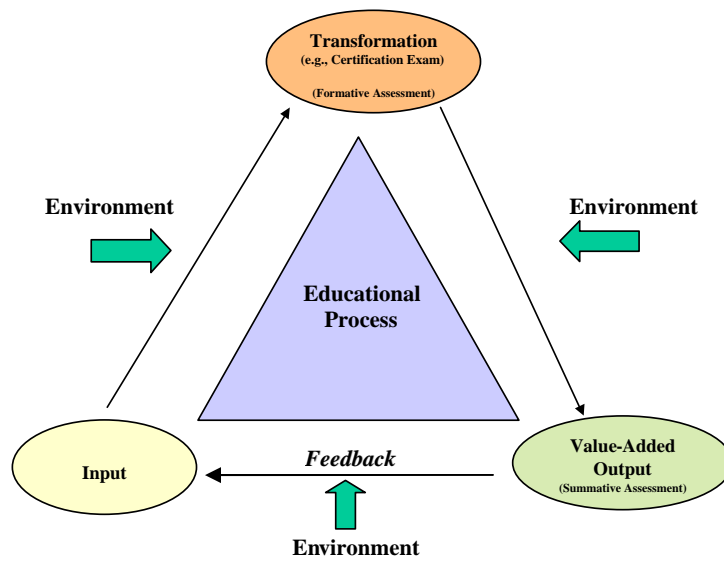


Figure Caption

Figure 2. Conceptual Measurement Model to Determine Educator Preparation Program Effectiveness.

