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TEACHER CANDIDATE SUCCESS ON STATE MANDATED PROFESSIONAL TESTS: ONE PREDICTIVE MEASURE

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This article presents a predictive model using teacher candidates' Grade Point Average (GPA) and its relationship to candidate success on two professional state mandated teaching exams. The 196 subjects for the study were traditional undergraduate teacher education candidates at a major university in Virginia. Specifically, the majority of courses were presented in the face-to-face setting, with a few online courses available. Subject selection was based upon completion of the Virginia Communication Literacy Assessment (VCLA) and the Virginia Reading Assessment (VRA). Data were collected for three consecutive years. Analysis of the relationship between GPA and scores on the VRA and VCLA demonstrated a statistically significant relationship between (a) GPA and mean score on the VRA, and (b) GPA and mean score on the VCLA. These results indicate that better overall performance in the classroom, as measured by grade point average (GPA), produces a higher mean score on both professional assessments.

"There is no knowledge that is not power" (Emerson, 1898, *Old Age* ¶. 8). Knowledge increases background information, deepens understanding of topics, and assists in making critical decisions. The weather is an excellent example. Robert Thomas created the *Old Farmer's Almanac* (1792) by using his documented observations and understanding of the complex natural cycles to create a weather forecasting formula that had an 80% accuracy rate! Farmers with this almanac knowledge were able to make smarter choices about which type of seeds to plant and when to take preventive measures against potential frost and drought conditions. Their increased knowledge resulted in smarter farming choices. Today we use daily weather forecasts to help us choose

clothing and transportation methods; knowledge is most certainly power. We believe that Emerson and Thomas' premises are powerful when combined; more specifically, knowledge coupled with documented observations and data over time produce the ability to make smart predictions.

Higher education is always searching for ways to predict student success in order to select the 'right' students into each academic school. The School of Law relies upon the Law School Admission Test (LSAT); the School of Medicine uses the Medical College Admission Test (MCAT); and the School of Education utilizes the Graduate Record Examinations (GRE). But all of these predictive assessments are intended for an older, more seasoned learn-

er-the graduate student. Our research deals with the undergraduate student; a younger, and often less focused, learner who is seeking teacher licensure. Specifically, we aim to portray one predictive model using teacher candidates' Grade Point Average (GPA) and its linear relationship to candidate success on two professional state mandated teaching exams, the Virginia Reading Assessment (VRA) and the Virginia Communication Literacy Assessment (VCLA).

Theoretical Framework

"A wise man has great power, and a man of knowledge increases strength" (Proverbs 24: 5). We propose to frame this study around the epistemological assumption that thinking something is 'good enough' is the enemy of wisdom. Moreover, teacher candidates who pursue excellence and gain knowledge in one area will continue this behavior in other areas of their life and experience increasing levels of success. Albert Bandura (1977, 1986, 1997) coined this behavior/thinking cycle 'self-efficacy' and explained that people who experience success are more likely to expect to do well and thereby work harder due to their expectation of achievement. In other words, success breeds success!

Review of the Literature

Thomas Jefferson did not trust local governments to bolster civilization; he believed whole-heartedly that the university, the heart of education and scientific progress, would destroy social injustice and create harmony (Randall, 1993). That kind of trust in higher education expired a

long time ago, though. Teacher education clearly depicts this faltering belief system in the university. The U.S. Secretary of Education recently stated, "By almost any standard, many if not most of the nation's 1,450 schools, colleges, and departments of education are doing a mediocre job of preparing teachers for the realities of the 21st-century classroom" (Teacher education, p. 6). Critical statements, coupled with serious funding issues, create an environment in which teacher education programs are constantly striving to recruit and train the best possible teacher candidates. The following sections will delineate a brief history of early teacher programs, its current climate, and research pertaining to current predictors of success.

A Brief History of Early Teacher Programs

Early colonial education began in the home, similar to current home-schooling practices. Dame schools resulted from women converting some homes into schools. Qualified teachers were simply well respected women who were interested in education. After students completed the dame school they were positioned in an apprenticeship program and taught a trade; these teachers did not require any training aside from demonstrating success in their trade (Sadker, 2006).

The Commonwealth of Massachusetts (2010) led the way toward our current teacher preparatory programs. It began by requiring periodical teaching checks (Sadker, 2006) and in 1647 passed The Old Deluder Satan law, which required a reading and writing teacher appointed in every town composed of 50 households and a Latin grammar school, to prepare students

for the university, for every town of 100 households. Failure to meet the statues of this law resulted in a hefty fine payable to the closest school. This new school structure increased the need for teachers and a structured preparation program.

True teacher licensure programs can trace their origin to the work of Horace Mann, Catherine Beecher, and the opening of the first normal school in 1839 (Parkay & Standford, 2010). Horace Mann believed public schools should help identify and nurture the talents in wealthy and poor children, and schools should revolutionize social disharmony (Brenton, 1970). He used public pressure to improve schools, promote stringent licensing procedures, and create effective teacher training programs (Sadker, 2006). The normal school preparation consisted of general knowledge, pedagogy courses, and mandated practicing teaching in a model school.

Current Climate of Teacher Education Programs

Teacher licensure, a certificate which allows the recipient to teach others in a classroom setting, is a current requirement. Initially a person demonstrating moral character and passing a modest test of general knowledge could teach (Ravitch, 2003). However, teacher education programs received a serious ultimatum in April of 1983, when *A Nation at Risk* (United States, 1983) informed the American public that educational foundations were being overtaken by complacency and mediocrity as portrayed by a decline in standardized test scores, functionality,

intellectual skills, and content area achievements. This pessimistic shift was perpetuated when John Goodlad (1990) condemned the teacher education programs by presenting a dismal and discouraging picture of education and highlighting a lack of cohesion in teacher education programs. The review and revamping of the teacher candidate requirements became increasingly specific when the National Commission on Teaching & America's Future (NCTAF) published their goal statements (1996). The NCTAF stated that by 2006: 1) all children will have knowledgeable, skilled, and committed teachers; 2) all teacher preparation programs will adhere and implement professional standards or cease functioning; 3) all educators will have access to and pursue professional development; 4) teachers and administrators will maintain employment based upon meeting best practices learned in goal three; 5) salaries will be tied to teachers' skills and cognition; and 6) all schools will allocate their resources to improving quality teaching. In 2001 this teacher training shift became legal precedence with the passing of the No Child Left Behind Act (United States, 2002); a document in which President George W. Bush continued the demanded for teacher education reform by requiring higher quality teachers by 2006. This act created an educational maelstrom with for profit and not for profit institutions immediately devising alternate routes to teacher certification. In fact, by 2007 all of the states, including Washington, DC, reported the implementation of some type of an alternate route to teacher certification (Feistritzer, 2007).

For example, presently in the state of Virginia teacher candidates can earn their license through a state approved teacher preparation program, an alternative state approved program, or an alternative route for career professionals. Teacher candidates must be 18 years old, pay appropriate fees, earn a baccalaureate degree, possess good moral character as prescribed by the Board of Education, demonstrate proficiency using technology, complete a child abuse recognition and intervention study, complete professional development regarding the Virginia Standards of Learning (SOLs), and acquire passing scores on the following professional tests: Virginia Communication and Literacy Assessment (VCLA), Virginia Reading Assessment (VRA), and the Praxis (Virginia Department of Education, 2010). We have come a long way from the normal school training environment!

Predictors of Success

The history of teacher education clearly demonstrates the great need to recruit and prepare high quality educators; how to achieve this goal does not have that same level of clarity. Zumwalt and Craig state:

Since 1985, every state has raised the bar for entry into the teaching profession in one or more ways: raising minimum grade point averages (GPAs); requiring majors in content areas; instituting teacher tests; requiring master's degrees for permanent certification; raising standards for program registration; and requiring national accreditation of teacher education programs

(2005, p. 157).

These measures were enlisted in the hopes of shifting through the pool of teacher candidates in order to keep and train only the ones with strong cognition and learning abilities. This section will briefly address two of these teacher candidate gatekeepers: Grade Point Average (GPA) and two professional teacher tests, the VRA and VCLA.

GPA. Using GPA for teacher candidate success has been around since the early 1900's (Mead & Holley, 1916; Meriam, 1905; Ritter, 1918). Grade Point Average has been linked as a predictive measure for the National Teacher Examination (NTE) (Ayers, 1988), the Praxis exam (Dybdahl, Shaw, & Edwards, 1997), and the Teacher Performance Assessment Instrument (TPAI) (Guyton & Farokhi, 1987). These findings gave merit to a rigorous GPA entrance requirement with many states and universities choosing to raise their GPA requirements (Blue, O'Grady, Toro, & Newell, 2002; Freeman, Martin, Brousseau, & West, 1989). However, not all assessments are demonstrating this correlation. For example, correlations between GPA and the Program for Licensing Assessments for Colorado Educators (PLACE) were not significant (Cobb, Shaw, Millard, & Bomotti, 1999) and the American Association of Colleges of Teacher Education (AACTE, 1992) found that GPA scores demonstrated gender and race patterns: females (3.14) were higher than males (2.89) and Caucasians were the highest averages with Hispanics in the middle and African Americans failing in the lowest score range. While GPA has its

strengths, it is important to note the research demonstrated weak areas.

Professional Teacher Tests. Assessment as a means of achieving certification dates back to the 1600's (Haney, Madaus, & Kreitzer, 1987) when candidates had to pass an oral exam with the written test appearing in the early 1900's (Cubberley, 1906). Professional teacher tests are written to create a normative measure of ensuring all teacher candidates, regardless of which university attended, are properly prepared for the classroom. This process is regulated under the Title II law, which requires states to submit a report that delineates the licensure assessments and the percentage of candidates passing disaggregated by universities (Amendments to the Higher Education Act of 1965, 1998). This process places the burden upon teacher education programs to demonstrate to the state proficiency through high percentages of candidates passing the professional exams. Critics of this procedure highlight the gap in passing success for racial and ethnic groups (Goertz & Pitcher, 1985; Smith, 1987) and call for better validity measures (Darling-Hammond, Wise, & Klein, 1995; Mitchell, Robinson, Plake, & Knowles, 2001). Regardless of the power of these critics' message, teacher education programs must produce candidates that successfully pass these exams or be prepared to lose their state accreditation.

Methodology

This causal comparative, quantitative study aims to increase the understanding of the predictive measure of Grade Point

Average (GPA) in regard to two professional tests. The predictive measure will be tested through the following hypotheses:

1. A teacher candidate's GPA is a predictive measure of the level of success one will encounter on the Virginia Reading Assessment (VRA).
2. A teacher candidate's GPA is a predictive measure of the level of success one will encounter on the Virginia Communication Literacy Assessment (VCLA).

Subjects and Site

The 196 subjects for the study were undergraduate teacher education candidates at a major university in Virginia. All subjects completed a traditional, residential teacher education program. Specifically, the majority of their classes were in the face-to-face classroom setting with a few online courses available. Subject selection was also based upon completion of the Virginia Communication Literacy Assessment (VCLA) and the Virginia Reading Assessment (VRA). Data were collected for three consecutive years and the subjects' gender and ethnicity information represents the typical teacher education population (Table 1).

Table 1
Subjects' Gender and Ethnicity Information

Gender	Count	Percentage
Female	189	96.4%
Male	7	3.6%
Total	196	100%

Ethnicity	Count	Percentage
African American / Black	3	1.5%
American Indian or Alaska Native	2	1.0%
Asian	3	1.5%
Hispanic or Latino	2	1.0%
Mexican American	1	0.5%
Not Specified / Not Reported	4	2.0%
Puerto Rican	1	0.5%
White	180	91.8%
Total	196	100.0%

Table 2
GPA Categorization

GPA	VCLA N= 196	VRA N= 196
< 3.00	16	16
3.00 – 3.25	36	36
3.26 – 3.50	44	44
3.51 – 3.75	52	52
> 3.75	48	48

Measures

GPA. Students' Grade Point Average (GPA) is a numerical representation of their work efforts. The GPA is calculated by dividing the total amount of grade points earned by the total of credit hours attempted. A typical GPA ranges from 0.0 to a 4.0. This numerical representation serves as a general measure of academic accomplishment and is an accepted measure of overall academic performance used throughout education.

School of Education guidelines dictate teacher candidates must maintain a 2.5 Grade Point Average (GPA) or above after being formally admitted into the teacher

education program. In order to understand the potential relationship between GPA and the professional assessments, we categorized the teacher candidates' GPA as follows: (a) GPA<3, (b) GPA 3.00-3.25, (c) GPA 3.26-3.50, (d) GPA 3.51-3.75, (e) GPA>3.75 (Table 2).

VRA. Virginia is one only of three states, California and Tennessee being the others, requiring teacher candidates to take an exam to demonstrate proficiency in teaching scientifically based reading instruction (Rigden, 2008; Stotsky, 2009). The test given in Virginia is the Virginia Reading Assessment (VRA).

The Virginia Reading Assessment became a licensure requirement in Virginia for elementary teacher education candidates in 2006. Creation of the assessment began in 2003 with the State Board of Education selecting teacher education faculty and public school teachers to form an advisory committee in the development of the new test. National Evaluation Systems (NES) handled the VRA validation process at the recommendation of the advisory committee. NES designed the test to align with Virginia's English SOL's, state-mandated reading competencies, and National Reading Panel recommendations. Content validity and field-testing measures were also conducted by NES (Elliott, 2006).

Elementary teacher and special education teacher candidates must make a minimum score on this criterion-referenced test. Currently the minimum score on the VRA is 235 if one is seeking licensure in VA.

VCLA. The Virginia Department of Education developed the Virginia Communication Literacy Assessment (VCLA) in 2005. This assessment, consisting of a reading and writing subtest, was created to measure a prospective teacher candidate's communication and literacy skills. Educators in Virginia were consulted to ensure that the VCLA included a knowledge base reflective of important state and national standards related to prospective educators. Subsequently, a random sample of public school teachers and education faculty reviewed the test to make sure it measured what it was designed to assess (VCLA and VRA Bulletin Overview, 2009-2010) This criterion-referenced test is

mandatory for elementary and special education teacher candidates in the state of Virginia; they must pass with a minimum score of 470.

Procedure

Institutional Review Board protocols were followed and approval was granted. The data consisted of the subjects' GPA, VRA, and VCLA scores. The independent variable was the teacher candidate's GPA as categorized by: (a) GPA < 3, (b) GPA 3.00 – 3.25, (c) GPA 3.26 – 3.50, (d) 3.51 – 3.75, and (e) GPA > 3.75. The GPA score ranges were matched against the dependent variables of (a) cumulative score on the VRA and (b) cumulative score on the VCLA. The relationships were analyzed using one-way Analysis of Variance (ANOVA). Since the number of students differed within each category, homogeneity of variance was tested using the Levene statistic.

Results

Analysis of the relationship between GPA and scores on the VRA and VCLA demonstrated a statistically significant relationship between (a) GPA and mean score on the VRA ($n = 196$, $df = 4$, $F = 11.382$, $sig. = .000$ at $\alpha = 0.05$), and (b) GPA and mean score on the VCLA ($n = 194$, $df = 4$, $F = 8.507$, $sig. = .000$ at $\alpha = 0.05$). These results indicate that better overall performance in the classroom, as measured by grade point average (GPA), produce a higher mean score on *both* professional assessments.

Table 3
Test of Homogeneity of Variances

VRA

Levene Statistic	df1	df2	Sig.
.204	4	191	.936

Table 4
One-Way ANOVA

VRA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5824.043	4	1456.011	11.382	.000
Within Groups	24433.401	191	127.924		
Total	30257.444	195			

Table 5

VRA Fisher's LSD

(I) GPA_Rank	(J) GPA_Rank	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
< 3.00	3.00 – 3.25	.799	3.398	.814	-5.90	7.50
	3.26 – 3.50	-1.517	3.302	.646	-8.03	5.00
	3.51 – 3.75	-8.466	3.233	.010	-14.84	-2.09
	> 3.75	-13.083	3.265	.000	-19.52	-6.64
3.00 – 3.25	< 3.00	-.799	3.398	.814	-7.50	5.90
	3.26 – 3.50	-2.316	2.542	.363	-7.33	2.70
	3.51 – 3.75	-9.265	2.452	.000	-14.10	-4.43
	> 3.75	-13.882	2.494	.000	-18.80	-8.96
3.26 – 3.50	< 3.00	1.517	3.302	.646	-5.00	8.03
	3.00 – 3.25	2.316	2.542	.363	-2.70	7.33
	3.51 – 3.75	-6.949	2.317	.003	-11.52	-2.38
	> 3.75	-11.566	2.361	.000	-16.22	-6.91
3.51 – 3.75	< 3.00	8.466	3.233	.010	2.09	14.84
	3.00 – 3.25	9.265	2.452	.000	4.43	14.10
	3.26 – 3.50	6.949	2.317	.003	2.38	11.52
	> 3.75	-4.617	2.264	.043	-9.08	-1.15
> 3.75	< 3.00	13.083	3.265	.000	6.64	19.52
	3.00 – 3.25	13.882	2.494	.000	8.96	18.80
	3.26 – 3.50	11.566	2.361	.000	6.91	16.22
	3.51 – 3.75	4.617	2.264	.043	.15	9.08

VRA Fisher's LSD

(I) GPA_Rank	(J) GPA_Rank	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
< 3.00	3.00 - 3.25	.799	3.398	.814	-5.90	7.50
	3.26 - 3.50	-1.517	3.302	.646	-8.03	5.00
	3.51 - 3.75	-8.466*	3.233	.010	-14.84	-2.09
	> 3.75	-13.083*	3.265	.000	-19.52	-6.64
3.00 - 3.25	< 3.00	-.799	3.398	.814	-7.50	5.90
	3.26 - 3.50	-2.316	2.542	.363	-7.33	2.70
	3.51 - 3.75	-9.265*	2.452	.000	-14.10	-4.43
	> 3.75	-13.882*	2.494	.000	-18.80	-8.96
3.26 - 3.50	< 3.00	1.517	3.302	.646	-5.00	8.03
	3.00 - 3.25	2.316	2.542	.363	-2.70	7.33
	3.51 - 3.75	-6.949*	2.317	.003	-11.52	-2.38
	> 3.75	-11.566*	2.381	.000	-16.22	-6.91
3.51 - 3.75	< 3.00	8.466*	3.233	.010	2.09	14.84
	3.00 - 3.25	9.265*	2.452	.000	4.43	14.10
	3.26 - 3.50	6.949*	2.317	.003	2.38	11.52
	> 3.75	-4.617*	2.264	.043	-9.08	-.15
> 3.75	< 3.00	13.083*	3.265	.000	6.64	19.52
	3.00 - 3.25	13.882*	2.494	.000	8.96	18.80
	3.26 - 3.50	11.566*	2.381	.000	6.91	16.22
	3.51 - 3.75	4.617*	2.264	.043	.15	9.08

*. The mean difference is significant at the 0.05 level.

Hypothesis 1 GPA and VRA Score Analysis

The first hypothesis tested that a teacher candidate's GPA is a predictive measure of the level of success one will encounter on the Virginia Reading Assessment (VRA). ANOVA was utilized due to robust nature in dealing with varying sample sizes, as long as the condition of homogeneity of variance is met.

Homogeneity of variance was tested using the Levene statistic. The Levene test assumes a null hypothesis of equal variances with the alpha level $\alpha = .10$ and an $\alpha > .10$ failing to reject the null hypothesis of equality of variance. The results of

the Levene statistic test of homogeneity of variance for the relationship between GPA and the VRA resulted in an alpha level of .936; thus demonstrating homogeneity of variance by failing to reject the null hypothesis and allowing us to proceed with analysis using one-way ANOVA.

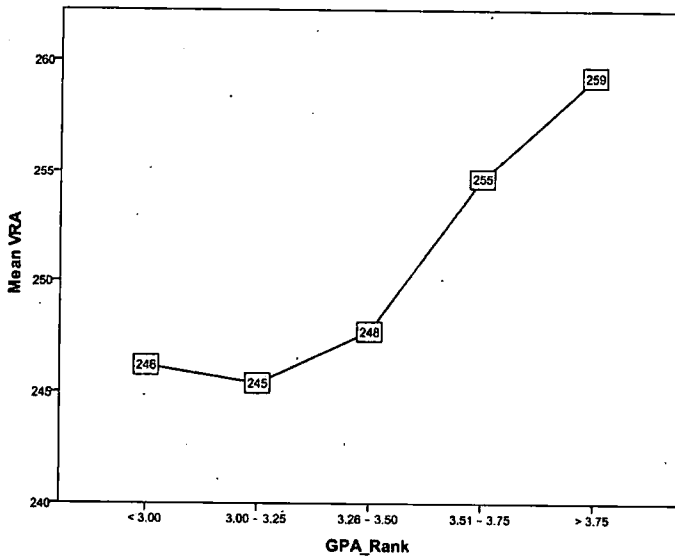
The results of the one-way ANOVA indicated that there was a statistically significant difference between the mean scores on the VRA based upon GPA. The results are presented in Table 4.

Fisher's Least Significant Difference (LSD) post hoc test indicated a statistically significant difference between the mean

Table 6
Descriptives

VRA									
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
< 3.00	16	246.19	9.935	2.484	240.89	251.48	235	267	
3.00 – 3.25	36	245.39	9.327	1.554	242.23	248.54	234	266	
3.26 – 3.50	44	247.70	13.872	2.091	243.49	251.92	184	282	
3.51 – 3.75	52	254.65	10.746	1.490	251.66	257.65	237	283	
> 3.75	48	259.27	11.054	1.596	256.06	262.48	242	290	
Total	196	251.83	12.457	.890	250.08	253.59	184	290	

Figure 1 GPA and Mean VRA score relationship



scores beginning at the 3.51 – 3.75 GPA level. These findings are presented in Table 5.

The descriptive statistics also indicate that as GPA range increases the mean score on the VCLA also increases for participants in this study (Table 6 and Figure 1).

The results of the analyses indicate that classroom performance, based upon the measure of GPA, produces statistically sig-

nificant differences in the mean score on the VRA at and above the 3.51 level.

Hypothesis 2 GPA and VCLA Score analysis

The second hypothesis was that a teacher candidate’s GPA is a predictive measure of the level of success one will encounter on the Virginia Communication Literacy Assessment (VCLA). ANOVA is robust to varying sample sizes as long

Table 7

Test of Homogeneity of Variances

VCLA Composite

Levene Statistic	df1	df2	Sig.
1.096	4	191	.360

Table 8

One-Way ANOVA

VCLA Composite

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13477.236	4	3369.309	8.507	.000
Within Groups	75650.494	191	396.076		
Total	89127.730	195			

Table 9

Descriptives

VCLA Composite

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
< 3.00	16	530.13	14.859	3.715	522.21	538.04	496	552
3.00 – 3.25	36	531.25	20.583	3.431	524.29	538.21	488	581
3.26 – 3.50	44	534.00	21.460	3.235	527.48	540.52	492	578
3.51 – 3.75	52	544.19	17.537	2.432	539.31	549.07	498	578
> 3.75	48	551.79	21.647	3.124	545.51	558.08	490	591
Total	196	540.24	21.379	1.527	537.23	543.25	488	591

as the condition of homogeneity of variance is met.

Homogeneity of variance was tested using the Levene statistic. The Levene test assumes a null hypothesis of equal variances. The alpha level ($\alpha =$) is .10, with an $\alpha > .10$ failing to reject, and an $\alpha < .10$ rejecting the null hypothesis of equality of variance. The results of the Levene statistic test of homogeneity of variance for the relationship between GPA and the VCLA resulted in an alpha level of .360; thus

demonstrating homogeneity of variance by failing to reject the null hypothesis and allowing us to proceed with analysis using one-way ANOVA.

The results of the one-way ANOVA indicate that there is a statistically significant relationship between GPA and mean score on the VCLA. The descriptive statistics also indicate that as GPA range increases the mean score on the VCLA also increases for participants in this study (Table 9 and Figure 2).

Figure 2
GPA and Mean VCLA score relationship

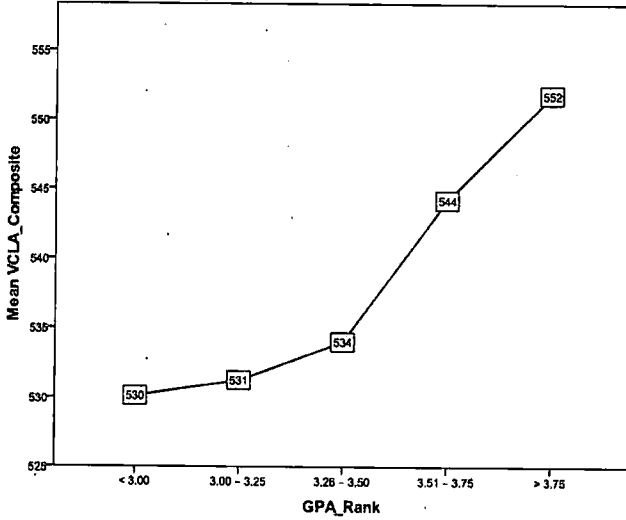


Table 10

VCLA Composite Fisher's LSD

(I) GPA_Rank	(J) GPA_Rank	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
< 3.00	3.00 - 3.25	-1.125	5.980	.851	-12.92	10.67
	3.26 - 3.50	-3.875	5.810	.506	-15.34	7.59
	3.51 - 3.75	-14.067*	5.690	.014	-25.29	-2.84
	> 3.75	-21.667*	5.745	.000	-33.00	-10.33
3.00 - 3.25	< 3.00	1.125	5.980	.851	-10.67	12.92
	3.26 - 3.50	-2.750	4.473	.539	-11.57	6.07
	3.51 - 3.75	-12.942*	4.315	.003	-21.45	-4.43
	> 3.75	-20.542*	4.388	.000	-28.20	-11.89
3.26 - 3.50	< 3.00	3.875	5.810	.506	-7.59	15.34
	3.00 - 3.25	2.750	4.473	.539	-6.07	11.57
	3.51 - 3.75	-10.192*	4.077	.013	-18.23	-2.15
	> 3.75	-17.792*	4.154	.000	-25.98	-9.60
3.51 - 3.75	< 3.00	14.067*	5.690	.014	2.84	25.29
	3.00 - 3.25	12.942*	4.315	.003	4.43	21.45
	3.26 - 3.50	10.192*	4.077	.013	2.15	18.23
	> 3.75	-7.599	3.984	.058	-15.46	.26
> 3.75	< 3.00	21.667*	5.745	.000	10.33	33.00
	3.00 - 3.25	20.542*	4.388	.000	11.89	29.20
	3.26 - 3.50	17.792*	4.154	.000	9.60	25.98
	3.51 - 3.75	7.599	3.984	.058	-.26	15.46

*. The mean difference is significant at the 0.05 level.

Post Hoc Tests for VCLA Scores

Fisher's LSD post hoc test showed a statistically significant difference in the mean scores beginning at the GPA 3.51 – 3.75 range and continuing through the GPA > 3.75 range.

The results of the analyses indicate that classroom performance, based upon the measure of GPA, produces statistically significant differences in the mean score on the VCLA at and above the 3.51 level.

Educational Implications/Conclusions

Teacher candidates' success in the university classroom parlays into achievement on many professional licensure exams (Ayers, 1988; Dybdahl, Shaw, & Edwards, 1997; Guyton & Farokhi, 1987), including the VRA and VCLA. This information should create two powerful reactions: 1) teacher education programs could utilize this predicative model based upon their university data and, 2) teacher candidates being encouraged to strive for excellence at the onset of their teacher education program.

This predictive model could guide data driven decision making which is a key component in the university accreditation process. The National Council for Accreditation of Teacher Education (NCATE) carefully and methodically reviews teacher education programs to determine if they are continually using data to reflect upon and improve their organizational structures. Implementing school-site data into a predictive model would efficiently allow teacher education programs an opportunity to analyze and implement GPA requirements grounded in research and reflection.

Benjamin Franklin often said, "An ounce of prevention is worth a pound of cure" (Independence Hall Association, 2010). Presenting the predictive outcome model to teacher candidates early in the program could spur motivation. Teacher candidates need to know the power of striving for excellence. Too often students believe they can merely go through the motions of education, with a mediocre work ethic, and then apply themselves when they are engaged in the throes of their profession. Oftentimes teacher candidates do not look at the big picture and the reality of the licensure requirements they will soon face. Figures 1 and 2 should encourage struggling candidates to make improvements, bolster the spirits of those who are already striving for excellence, and provide a visual concerning up-and-coming testing measures. The candidates should be shown that their daily work efforts will lead to success on professional assessments that gauge their pedagogical and cognitive skills!

Finally, all teacher education programs must be metacognitive of their GPA requirements. Can all of the teacher education faculty delineate and defend the school's GPA requirements? This predicative model may be one means to ensure data driven dialogue and reflective practice concerning two licensure gatekeepers: GPA and professional assessments.

Future Studies

Curriculum analysis linked to professional assessment success is one area that needs further investigation. Can specific course objectives, assignments, and success be linked to performance on

professional assessments?

Student teacher supervisors' observations should also be explored in regard to the GPA, professional assessment predictive model. Do their comments align with success on GPA and professional assessments? If not, does this added assessment measure fill the gap for minority and test anxious candidates whose GPA and/or professional assessment results may not adhere to licensure requirements.

Teacher education programs with high numbers of Hispanic and African American students could add to the body of knowledge regarding GPA as a predictive measure. Our study demonstrated a significant correlation; however, the population was predominately Caucasian and research has shown that this race generally has a higher GPA score (AACTE, 1992).

Multiple universities analyzing their GPA and professional test score data would create a clearer picture of the predicative model. Does this model remain significant when the sample size and school demographics change? Most importantly, in the current age of accountability, teacher education programs must begin to use their own data to create successful programs while also meeting national and state mandates.

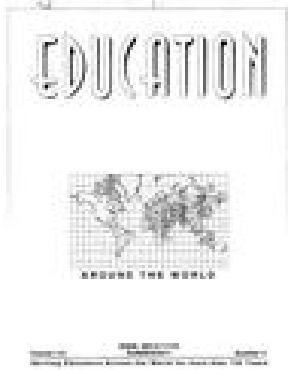
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