

RUNNING HEAD: The Development of an Instrument for Teacher Preparation Programs: How Can We Measure Student Teachers' Impact on 4th and 5th Graders' Attitudes?

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The Development of an Instrument for Teacher Preparation Programs: How Can We Measure Student Teachers' Impact on 4th and 5th Graders' Attitudes?

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With the report from the National Council on Education Standards and Testing (1992), came the beginning of the standards movement. The report called for changes in assessments as well as other aspects, such as professional development. This led to a call for high-quality teacher preparation (Bean, 2015). Currently, standardized tests are being used to assess students' performance and as one of the determinants of teachers' salary, as required in the Federal Race to the Top grants to the states. Teacher preparation, therefore, plays a major role in the success of students on standardized assessments. The latest movement from the Council for the Accreditation of Educator Preparation (CAEP) is an effort to evaluate teacher preparation programs based on the impact of their program candidates on students. Collecting student achievement data, however, is very difficult to obtain from a school system without parental consent. Additionally, there are too many intervening variables to establish a causal relationship between a student teacher and student achievement.

One way to measure the impact of student teachers on their students might be to implement an assessment of content learned from a unit taught by a student teacher. That gives a one-dimensional data point, which yields a score demonstrating whether a student teacher can teach information on a topic. Another way would be to seek attitudinal response on surveys of the students towards their student teacher about different areas of interaction, not just one content area. This multidimensional approach may yield more useful information for teacher preparation programs. The challenging aspect with that situation is how to interview students directly to determine their response to the student teacher while providing confidentiality. This research study, through the development of an instrument for teacher preparation programs, examined student teachers' impact on 4th and 5th graders' attitudes towards their student teacher. The instrument was administered anonymously by the cooperating teacher.

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Review of the Literature

The National Council on Teacher Quality's (NCTQ) *2013 Teacher's Prep Review* referred to teacher preparation programs in the United States as mediocre and sparked a national debate about the necessity to strengthen them in order to effectively prepare future teachers to help students succeed in the "...contemporary American classroom" (Greenberg, Walsh, & McKee, 2014, p. 1). Following this publication, which brought teacher preparation programs to the forefront, the country began to take "...a harder look at how its teacher preparation schools are improving the quality of the teachers they produce" (Greenberg et al., p. 1). Initiatives to improve these programs come from different sources, such as the federal government, school boards, individual institutions that offer teacher preparation programs, and states, with thirty-three states making significant changes to laws and regulations to their existing teacher preparation policies (Greenberg et al., p. 8). Some of the significant changes include academic proficiency exams, assessment of specific content knowledge, and additional guidelines for student teaching experiences, such as requiring that it be an adequate length and that student teachers are only assigned to cooperating teachers who have been classified as effective through measures the school and/or district use (Greenberg et al., p. 9).

Many teacher education programs are grounded in Vygotskian theory (Vygotsky, 1978), in which learning takes place in the learner's Zone of Proximal Development (ZPD). This is a sociocultural theoretical perspective. Through this perspective, an effective teacher must be aware of students' needs in order to grow (Kim & Schallert, 2011). Being aware of students' needs requires teachers to care about their students and, in turn, students to care about learning from their teacher. Noddings (1984, 1992) coined the term, "ethic of care" to describe the interdependence of the one-caring and the cared-for. Transferring this to the classroom, caring is

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the quality of the way the teacher responds to the students and how the students respond to the teacher. Beginning in the 1990s, research was focused on the influence of instruction on reading motivation and engagement (Malloy, 2015). It was found that reading comprehension and motivation are correlated (Guthrie & Humenick, 2004). In recent research, it was found that teachers can influence student motivation by creating enhanced classroom contexts (Malloy, 2015). Hence, the student teaching experience is, perhaps, the most important component of teacher preparation programs because it allows for these caring interactions and enhanced classroom contexts to be established. It is during this experience that student teachers truly demonstrate not only their awareness of students' needs, but also their content area knowledge, their ability to make meaningful and positive relationships with their students, and their overall preparation to enter the classroom. Building positive relationships with students is essential for their academic success because, as Wentzel (1998) and Resnick et al., (1997) argued, the relationship between teachers and students can have an immediate influence on students' motivation and behavior. In addition, these supportive relationships can provide the environmental and social supports needed by students to succeed (Pianta, 1999). However, it can be very difficult for student teachers to establish these relationships in today's classrooms, as the pressures of accountability may distract teachers from creating a culture of caring in their classrooms (Hallinan, 2008).

Statement of the Problem

Student attitudes play a major role in the classroom. The often-cited definition of attitude is that it is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 2007). The degree of favor or disfavor can be seen as a function of aspects of the classroom and the instructional practices (Malloy, 2015).

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For instance, Brophy (1999) discusses how teachers can provide utility value, emphasizing the worth of learning the content. Such aspects used by teachers greatly impact student learning (Malloy, 2015) and can be seen as one way it impacts the effectiveness of the student teacher in helping students succeed academically. Researchers know very little about the topic of students' attitudes towards their student teachers. Therefore, this study sought to develop and validate an instrument for assessing the impact of student teachers on the students' attitudes.

Research Question

In the state of Florida, prospective teachers are required to pass two examinations to qualify for certification: a professional conduct/behavior exam and an academic instruction/behavior exam. Using this knowledge, the following research question was formulated to address the specified need:

- Does the factor structure of the students' responses support the two state certification requirements?

Methods

For the instrument development and validation process, several steps were taken. First, questions were written for each of the factor structures from the state certification exam and a Table of Specification (ToS) was used to do a factor analysis (Newman, Lim, & Pineda, 2013). This process involved the input of six Elementary Education experts on the survey questions to help determine if the questions aligned with the two concepts. The agreement was quantitatively determined. The experts then suggested changes to the questions based on what they believed needed to be added in order to measure the two concepts. Once the changes were made, the questions were qualitatively assessed. The final product consisted of ten items with a four smiley face Likert-style scale (Happy, Somewhat Happy, Somewhat Unhappy, and Unhappy). Hopkins

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and Stanley (1981) found that pictorial response scales are effective for assessing attitudes for children. Further, Yang (2002) found that a smiley face-assessment scale was a reliable instrument for measuring the affective domain for students. To further test this instrument prior to conducting the study, a pilot study was conducted with 4th and 5th graders responding about their own classroom teachers. Feedback from the pilot study resulted in the simplification of the wording of the open-ended questions.

The final product was administered to fourth and fifth grade students with a student teacher in several schools throughout Miami-Dade County. The survey was administered by the classroom teacher; the student teacher was not present during the administration of the instrument, nor did he/she have access to the completed surveys. Student responses were anonymous; no identifiable data was gathered. Data gathered was quantitatively evaluated for reliability and specific item statistics. A factor analysis was also conducted in order to identify correlated variables to create factors. Even though Likert scales are considered ordinal data (Jamison, 2004), errors for treating the Likert scale results as integral are minimal (Jaccard & Wan, 1996) and it has become common practice to use parametric statistics to analyze ordinal data (Blaikie, 2003). Finally, specific item responses were grouped into the two areas (Professional Conduct/Behavior and Academic Instruction/Behavior) in order to analyze student attitudes towards their student teacher in each specific area. Student responses for items 1, 2, 3, 9, and 10 were grouped into Professional Conduct/Behavior and responses for items 4, 5, 6, 7, and 8 were grouped into Academic Instruction/Behavior.

Results

A total of 268 students completed the survey; table 1 shows the grade level distribution of students, 170 (63.4%) fourth-graders and 98 (36.6%) fifth-graders. Of the 268 participants, 117

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(43.7%) were male and 147 (54.9%) were female, as shown in Table 2. Six of the students (2.2%) were Asian, 21 (7.8%) were Black, 166 (61.9%) were Hispanic, 44 (16.4%) were White, and 9 (3.4%) were classified as Other, as shown in Table 3. Lastly, the ethnicities of the student teacher were also diverse; two of the student teachers (.7%) were Asian, 47 (17.5%) were Black, 165 (61.6%) were Hispanic, 12 (4.5%) were White, and 26 (9.7%) were classified as Other, as shown in Table 4.

Table 1

Grade Level Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
4	170	63.4	63.4	63.4
Valid 5	98	36.6	36.6	100.0
Total	268	100.0	100.0	

Table 2

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
1	117	43.7	44.3	44.3
Valid 2	147	54.9	55.7	100.0
Total	264	98.5	100.0	
Missing System	4	1.5		
Total	268	100.0		

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Table 3

Student Teacher Ethnicities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	.7	.8	.8
	2	47	17.5	18.7	19.4
	3	165	61.6	65.5	84.9
	4	12	4.5	4.8	89.7
	5	26	9.7	10.3	100.0
	Total	252	94.0	100.0	
Missing	System	16	6.0		
Total		268	100.0		

Table 4

Student Ethnicities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	2.2	2.4	2.4
	2	21	7.8	8.5	11.0
	3	166	61.9	67.5	78.5
	4	44	16.4	17.9	96.3
	5	9	3.4	3.7	100.0
	Total	246	91.8	100.0	
Missing	System	22	8.2		
Total		268	100.0		

To estimate the reliability of the instrument, a Cronbach Alpha was conducted. The Cronbach Alpha helps determine the internal consistency of the instrument, or whether all items used in the survey measure the same construct (Tavakol & Dennick, 2011). This coefficient is necessary in order to assess whether specific items need to be removed from the instrument prior to further analysis in order to increase its reliability. With a range of 0 to 1, Cronbach Alpha

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values of 0.7 to 0.8 are deemed satisfactory (Bland & Altman, 1997). For this instrument, the subscale of the 10 items indicated a high internal reliability ($\alpha = 0.791$). Therefore, none of the ten items were removed, as the reliability of the instrument would have decreased, as shown in Table 5.

Table 5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	33.72	8.331	.536	.764
Q2	33.62	8.868	.442	.776
Q3	33.80	8.172	.460	.775
Q4	33.57	8.713	.508	.769
Q5	33.67	8.309	.416	.781
Q6	33.68	8.383	.489	.770
Q7	33.58	8.810	.385	.782
Q8	33.72	7.421	.610	.753
Q9	33.62	9.019	.380	.782
Q10	33.48	9.273	.493	.777

Specific item statistics for all ten items show that the majority of student responses were marked as happy or somewhat happy, indicating their positive attitude towards their student teacher. The number of respondents (n) varied for each of the ten items, as some of the student teachers were in departmentalized classrooms and reading was not one of the subject areas they taught. When asked how they feel when the student teacher explains classroom rules or tells them what to do (Item 1), the majority of students (68.7%, $n = 268$) answered happy. When asked how they feel when they ask the student teacher for help with using materials in the class such as references or the computer (Item 2), the majority of students (77.6%, $n = 268$) also

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answered happy. Similarly, when asked how they feel when they ask their student teacher questions about classroom procedures or situations (Item 3), most students (67.5%, $n = 268$) selected happy. Regarding their feelings when they work on reading with their student teacher (Item 4), most students also responded happy (71.6%, $n = 229$), and 63.8% ($n = 225$) chose happy to express how they feel when they work on math with their student teacher (Item 5). As it relates to working on writing (Item 6, $n = 229$), science (Item 7, $n = 245$), and social studies (Item 8, $n = 221$) with their student teacher, most students feel happy (64.6%, 73.5%, 61.9%, respectively). Likewise, students reported feeling happy when sharing their ideas with their student teacher (Item 9, 73.5%, $n = 265$) and when their student teacher helps them learn (Item 10, 86.6%, $n = 267$).

When conducting a factor analysis using all ten items, three factors emerged using the Kaiser rule (eigenvalues greater than 1). The Kaiser rule is important in the analysis because it eliminates all factors that account for less variance than one variable does, since its reliability would then be negative (Kaiser, 1960). As shown in Table 6, ten components were extracted in total, accounting for 100% of the variance. The first factor accounts for 36.084% of the variance, the second accounts for 11.854% of the variance, and the third factor accounts for 10.445% of the variance. The total amount of variance accounted for by the first three principal components solution is 58.383%.

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Table 6

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.608	36.084	36.084	3.608	36.084	36.084	2.366	23.656	23.656
2	1.185	11.854	47.937	1.185	11.854	47.937	1.802	18.021	41.677
3	1.045	10.445	58.383	1.045	10.445	58.383	1.671	16.706	58.383
4	.818	8.182	66.565						
5	.744	7.442	74.006						
6	.649	6.493	80.499						
7	.561	5.609	86.108						
8	.518	5.175	91.284						
9	.442	4.422	95.705						
10	.429	4.295	100.000						

Extraction Method: Principal Component Analysis.

The Rotated Component Matrix (see Table 7) shows the factor loading for each item. The first factor, Instructional Behavior, relates to how the students felt about the way the student teacher helped them learn. The second factor, Content Area, relates to how the students felt regarding their student teacher's knowledge of the specific content area. Both of these factors are closely related, hence the cross load of items one and eight. The last factor, Professional Behavior, relates to how the students felt about the relationship the student teacher established with them. Therefore, factor analysis supports the construct validity of these items, with instruction having two sub-concepts: Academic Instruction/Behavior (factors 1 and 2) and Professional Conduct/Behavior (factor 2).

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Table 7

Rotated Component Matrix^a

	Component		
	1	2	3
Q10	.738	.047	.175
Q3	.678	.101	.133
Q4	.665	.022	.351
Q1	.627	.448	-.038
Q8	.568	.514	.141
Q5	.033	.755	.241
Q7	.163	.717	.011
Q9	.276	-.135	.787
Q2	.003	.398	.715
Q6	.316	.254	.537

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Furthermore, to assess whether the attitudes of the students towards their student teachers in each of these two areas were negative or positive, student responses for various items were added. As shown in Table 8, the mean ($\bar{X} = 18.46$) shows that students had a positive attitude towards the student teacher's professional conduct/behavior. This calculation was made by adding student responses from questions 1, 2, 3, 9, and 10. Similarly, the mean ($\bar{X} = 15.9$) shows that students also had a positive attitude towards the student teacher's academic instruction/behavior (see Table 8). Lastly, when looking at the overall attitude of students towards their student teacher, the mean ($\bar{X} = 34.37$) shows that students had an overall positive attitude as well (see Table 8).

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Table 8

<i>Descriptive Statistics</i>		
	N	Mean
Professional Conduct	268	18.46
Academic Instruction	268	15.90
Raw Score	268	34.37
Valid N (listwise)	268	

Discussion and Future Research

This study was devised to gather information about the students' response to their student teachers. The instrument was based on the areas of Professional Conduct and Academic Instruction, which are tested by the state for certification. Because the students' response was overwhelmingly positive, the results indicate that these students were very happy with their student teacher, both with their professional conduct and academic instruction. Although the Academic Instruction factor had cross loading for two items, results of the study suggest that the college of education was preparing their student teachers to meet the two certification areas. One might say that the college of education was teaching the areas that are represented on the test, the areas that are currently the focus of teacher education. This is important because, as teacher preparation programs reshape their curriculum to help their student teachers meet new certification demands, this instrument serves as a tool to measure student teachers' impact on students, an important component for teacher certification. Future research should focus on, perhaps, other institutions within the state using the same instrument to be able to compare their results. It might even be appropriate to try using the instrument in other states that may have other criteria for certification to see if the results are as positive for those institutions.

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