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Validly and Reliably Assessing Teacher Candidate Dispositions toward Teaching

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### Abstract

Schools function primarily upon two basic principles: the education of students in cognitive skills and the education of students in the social skills necessary to function successfully within society, the workforce, and the political framework of the country (Fullan, 1993). Although these principles are met through the overt, the hidden, and the null curricula (Eisner, 1997), public and political outcry for accountability and the implementation of the NCLB requiring all teachers to be “highly qualified” have led colleges of education to place more emphasis on knowledge of content than on disposition toward teaching. In order to focus more overt attention on dispositions, an instrument of measure was developed and implemented over a four-year period at a private western New York university. The findings yielded a high reliability score for the data (Cronbach’s  $\alpha=.987$ ) and strong content validity. However, a maximum likelihood factor analysis showed that contrary to the initial hypothesis that there existed three independent components by which to measure teacher candidate dispositions, all twenty-one items in the measure were found to be highly related; thereby, yielding a single factor.

### **Validly and Reliably Assessing Teacher Candidate Dispositions toward Teaching**

Teacher candidates must be challenged to identify and reflect thoughtfully on their own beliefs in order for significant change to occur. According to McNeil (1971) the major indicators of teacher competency are found in personality, appearance, health, attitudes, and philosophy and not in pedagogical ability. However, all too often, colleges of education emphasize grade point averages, observation ratings, and standardized test results as determinate measures of competence. Because studies (Grenier, & Smith, 2009; Fleener, 2001; Rieg, Paquette, & Chen, 2007) have determined the retention rate in the first five years of teaching is less than 50%, it seems apparent that a more valid means of acceptance to the teaching profession needs to be implemented at the preparatory stage. Utilizing both inferential and descriptive statistics, the research team sought to answer three questions:

1. *Are the inferences of teacher candidate dispositions made by faculty valid and reliable?*
2. *Based on these inferences, what percentage of candidates exhibit behaviors that are:*
  - a. *Inappropriate*
  - b. *Appropriate*
  - c. *Exceptional*
3. *For which dispositions do teacher candidates exhibit behaviors that do not meet the expectations of faculty?*

In order to examine these questions, the data were examined through descriptive statistics and inferential statistics that were consistent with the *General Linear Model*. According to Thompson (2000), all parametric statistical procedures (e.g., t test, ANOVA, MANOVA, & Regression), which are considered to be part of the analytic family known as the *General Linear Model* are correlational in nature (Bagozzi, Fornell, & Lacker, 1981; Cohen, 1968, Knapp, 1978). These procedures are also hierarchical in that some procedures are special cases of

others. One such example of this is the MANOVA which, unlike the ANOVA allows the researcher to simultaneously examine a various groups of subjects on several dependent variables; the ANOVA restricts this examination to a single dependent variable (Reichwein Zientek, & Thompson, 2009). At the peak of the hierarchy is regression which Cohen (1968) argues includes all other univariate procedures.

By applying such statistical procedures as exploratory factor analysis (EFA) and System equation modeling (SEM), construct validity of scores can be examined. According to the American Statistical Association (2007), validity is defined as “the extent to which a measure is meaningful, relevant, and useful for the research at hand” (p. 12). Coupled with this assessment, it is also important to examine the reliability of the scores, or the extent to which the scores are consistent.

#### Background to the study

##### *The conceptual framework from which the dispositions have been derived*

The conceptual framework of the teacher education program at the university that this study was conducted is aligned with the mission of the university and approved by members of the faculty of education. It is this framework which directs the standards, goals, and assessments for all programs offered within the college of education. The conceptual framework of the college of education is grounded in the Catholic and Vincentian tradition as identified by the founding religious community of the University. As a Vincentian university, inspiration is drawn from St. Vincent de Paul, a sixteenth century cleric, who organized his contemporaries to respond compassionately to people's basic needs. Continuing this tradition, the University, through its programs, seeks to inspire candidates to serve all members of society, especially the poor and oppressed, in local communities and in the larger world.

*It is the mission of the College of Education, therefore, to prepare educators, who demonstrate the knowledge, skills, and dispositions needed to serve others and who further the practices of their respective professions. We seek to inspire our candidates in the Vincentian tradition; and to foster core values of professional commitment and responsibility, professional relationships, and critical thinking and reflective practice.*

(College of Education Mission Statement, 2004)

The goal of the College of Education is to produce teacher candidates who will be leaders in the profession, demonstrated through positive interactions with other candidates, parents/guardians, and colleagues. In essence, the pursuit of good teachers, and good teaching, concurs with Shulman who suggests that the process is not just uni-dimensional or based solely on content but rather as one that requires “nurturing the moral and spiritual development, the civic engagement and the socialization of students” (as cited in Tell, 2001, p.6). In order to prepare teacher candidates for the role of inspiring students to learn, the approach to instruction throughout the program is predicated on three dimensions of learning: constructivism, reflective practice, and a curriculum based process-product model. It is these three areas that serve as the core beliefs underlying the ten INTASC standards which have been adopted by the faculty and which serve as program goals for the teacher education program. The model that was implemented for assessment of dispositions was predicated on the mission statement of both the university and the college of education. Candidates are expected to take responsibility for their learning (constructivism); successful graduates should be life-long learners who constantly reflect on the effects of their practice (reflective practice) and growth, and learning should be based on best practices of teaching (process-product).

### **A review of the literature**

Informal curriculum manifests itself through such intangibles as atmosphere and dispositional attitudes toward learning. Assessment of an individual's fitness to teach must extend beyond the content (Dewey, 1902/1990). Since the goals of professional educators are (1) to transform their students and (2) to inspire them to think, to feel, and to experience citizenship as active members in a democratic society (Dewey, 1916), educators must consider candidates' dispositions, their patterns of actions that are deliberate and enacted freely and without coercion (Katz & Rath, 1985). The research that drives the college's insistence on reflective practice dates back to the Carnegie Foundation for the *Advancement of Teaching*, which, beginning with the Flexner Report (1910), has led the charge in the research and development of effective professional practices. Unlike academic education, professional education prepares the individual to engage in effective practice in a manner that promotes not only informed judgment to act, but also cognizance of consequence (Shulman, 2005). Further evidence for our use of current research can be found at the heart of such practice as the requirement for all educators to reflect on what they deem to count as legitimate knowledge and on their claim in knowing what they claim to know (Rice, 2002). Both Schon (1982, 1995) and Miller (1985, 1993, 2001) advocate teachers to be reflective practitioners who engage in symbiotic learning experiences with their students. Davies and Osguthorpe (2003) advance this theory by introducing the concept of "learner intent." Self-assessment, peer-assessment, and critical examination of the efficacy of one's own practice are essential dispositions for all educational professionals (Feimann-Nemser, 1990). The members of the faculty of education believe that reflective practice can be taught with the view of students as knowledge-producers-in-search-of-meaning (Palmer, 1983). Pedagogy that poses problems encourages reflective thinking and action based upon that thought (Miller, 1985, 1993). Educators must be reflective and meta-cognitive in order to encourage these practices in those

they serve (Eby, Herrell, & Hicks, 2002; Henderson, 2001; Zemelman, Daniels, & Hyde, 1998). The education faculty further believes that interaction with current and future practitioners both extends and promotes such reflection.

Due to the roles that our candidates will play in the teaching profession, along with the call for the accountability of all educators, there must exist a respect for professional judgment. Eisner (1998) refers to this judgment as connoisseurship, which is a necessary part in the validation of the process. The formal curriculum is evidenced through lesson plans, materials and objectives. The informal curriculum manifests itself through such intangibles as atmosphere and dispositional attitudes toward learning. Dewey (1900/1990) believes that there needs to be a shift in focus beyond the content to the transformation of individual learners. The goal of professional educators is to transform their students, to inspire them to think, to feel, and to experience citizenship as active members in a democratic society (Dewey, 1916; Noddings, 2002). In this regard educators must turn to dispositions, which the researchers have previously identified as the patterns of actions that are thought out and enacted freely and without coercion (Katz & Rath, 1985), and which advocate the motto of the French philosopher Victor Cousin, “as is the teacher so is the school”. ([www.carnegie.org/sub/news/teachers.html](http://www.carnegie.org/sub/news/teachers.html))

Assessment of teacher candidate dispositions has, to date, focused on their beliefs as measured through self inventories (McBride, Xiang, Wittenburg, & Shen, 2002; Giovanelli, 2003; Vannatta, & Fordam, 2004, Earnst & Monroe, 2004, Cliftan, Perry, Stubbs, & Roberts, 2004). However, not all candidates are skilled enough in reflective practice to assess reliably their own performance. Within a constructivist paradigm, where candidates create knowledge based on a conceptual framework, predispositions which direct the learning process are seen to have significant importance. According to Brousseau, Book, & Byers (1988) “experiential effects of personal life, previous schooling, and student teaching are more powerful in building

conceptions of teaching than the formal pedagogical education received in teacher education programs... Student teachers' perspectives tended to solidify rather than change during the student teaching experience" (as cited in Wenzlaff, 1998, pp. 566-567). Defining excellence in teaching is both an arduous and imprecise task that has traditionally focused on the observable and technical aspects of the profession (Collinson, 1999). There has been a long standing belief among educators that within the profession there do exist distinguishable qualities between teachers who are considered to be "good" and teachers who are not (Darling-Hammond, 1995, Darling Hammond, 2000).

Teachers must become predisposed to self-reflection and evaluation and include it as an integral aspect of the daily workings of education (Miller, 1993). Excellent teachers emphasize the importance of teacher dispositions, values and contributing factors to success (VanManen,1986; Palmer, 1993; Miller, 2000). Teachers motivate students and in doing so, their dispositions play an important role in their success. Dispositions must be cultivated as worthwhile activities (Arnstine, 1990). "Yet while the rhetoric on teachers as decision makers and teachers as reflective practitioners increase, reliable and valid measures on ethics and dispositions are almost nonexistent. Because excellent teachers routinely mention personally-important ethics and dispositions they try to convey to students" (Collinson, 1999, p.7) colleges of education need to assess these dimensions.

### **Methods**

The term disposition was operationally defined as "the way in which values, commitments, and professional ethics manifest themselves in professional practice" using the university mission statement and the input of faculty, teacher candidates, and teachers and administrators from partnering school districts. Based on responses from an open ended questionnaire, three core dispositional values were identified: 1) Professional Commitment and Responsibility; 2)

Professional Relationships; 3) Critical Thinking and Reflective Practice. These core values were further defined through the development of a twenty-one item questionnaire. During the initial orientation day held at the beginning of the program, all candidates are provided two copies of the evaluation sheet and told that they will be evaluated by all instructors in each of their three phases of the program. Candidates read, sign and return to the department chair, one copy of the form, keeping the second copy for their own records. Further, the criteria of what are deemed to be acceptable dispositions are also embedded in coursework throughout the program to ensure content validity. This ex post facto study examined the data collected over the course of three years (2006-2008) as a means of determining the validity and reliability of the evaluations.

Our preservice program in teacher education has three phases. The first phase consists of fifteen credit hours of foundational coursework and seventy-five hours of service learning in the K-12 classroom (which are aligned to the area and level certification sought by the candidate). The second phase consists of fifteen credit hours focused on methods of teaching and seventy-five hours of teacher assistantship experience in the K-12 classroom (which are aligned to the area and level certification sought by the candidate). The third phase consists of two seven week student teaching placements. Candidates enrolled in the Master's program follow a cohort model which requires them to take five courses in one term. At the undergraduate level, however, students complete each of their first two phases of study over several terms. All instructors are required to complete and submit to the Department Chairperson a dispositional evaluation of each student. Therefore, at the end of each of the first two phases of coursework, each candidate is independently evaluated by five instructors. Candidates are evaluated by instructors through a 21-item questionnaire. Instructors respond to each of the twenty-one items using a five point Likert scale which includes responses ranging from "I strongly disagree" to "I strongly agree". It is important to note that this scale is not used incrementally but rather as a relative indicator

which utilized a score of three as the acceptable level from which perceived deviations in behavior are measured. Thus candidates who exhibited acceptable behaviors are given a rating which would convert to a score of three. Candidates who exhibited behaviors that were perceived as less than favorable are given a rating of one or two depending on the perceived level of inadequacy. Likewise, candidates who are believed to exhibit excellent behaviors are given ratings of either four or five, depending on the perceived strength of the behavior.

For the purpose of this study, all data were coded and matched according to student number. Data were examined and scrubbed to ensure that graduate candidates had received multiple evaluations. There was an average of three evaluations for each undergraduate student and an average of five evaluations for each graduate student. Candidates who had not received at least two independent evaluations were eliminated from the study. The final sample was comprised of 499 graduate students and 276 undergraduate students ( $n=775$ ). The total number of evaluations for these students was 3271.

### *Results*

An examination of the first question, *Are the inferences of teacher candidate dispositions made by faculty valid and reliable?* found that although candidates were evaluated on what were defined by the faculty as three core dispositions, an exploratory factor analysis using a maximum likelihood extraction method was conducted and the findings yielded a single factor ( $X^2=15196.888$ ,  $p<.001$ ) which the researchers have identified as the D factor. Content validity was established by comparing each item in the survey with the conceptual framework that the college has embedded in the course objectives, course syllabi and common assignments in the candidates' program of study. Reliability of the scores was examined by conducting a Cronbach's alpha on the data. The findings of this statistical test yielded a high reliability (Cronbach's alpha =.931) for the seven item responses aligned to disposition 1, professionalism;

high reliability (Cronbach's alpha =.919) for the seven item responses aligned to disposition 2, professional relationships; and high reliability (Cronbach's alpha =.970) for the seven item responses aligned to disposition 3, critical thinking and reflective practice. There was also high overall reliability for the 21 item responses (Cronbach's Alpha = .978).

An examination of the second question: *Based on these inferences, what percentage of our candidates exhibit behaviors that are: inappropriate, appropriate, exceptional?* found that a range of between 2% and 5% of faculty responses indicated that candidate behavior was unacceptable with respect to certain areas of professionalism (cf Table 1). These data also indicate that instructors believe at least between 84% and 93% of candidates exhibit behaviors that meet faculty expectations and between 4% and 12% exhibit behaviors that faculty consider to be exceptional. As is indicated by Table 2, instructors believe between 2% and 3% of candidates exhibit behaviors in the area of professional relationships that are inappropriate, between 85% and 91% exhibit appropriate behaviors and between 6% and 11% of candidates exhibit behaviors that faculty consider to be exceptional. The data in Table 3 indicate that instructors believe that the 3% exhibit inappropriate behaviors, between 86% and 91% exhibit appropriate behaviors, and between 6% and 11% exhibit behaviors that are deemed exceptional with regard to critical thinking and reflective practice. These three dispositions—professionalism, professional relationships, and critical thinking and reflective practice--comprise the three core dispositions we seek to instill in our candidates.

Table 1: Professionalism

	% inappropriate	% appropriate	% exceptional
Maintains confidentiality	2	90	7
Demonstrates enthusiasm toward teaching and/or learning new and/or challenging material	4	84	12
Demonstrates an understanding of, and compliance with, laws and policies	2	93	4
Maintains professional/appropriate appearance	2	92	6

Is prepared and punctual for class and appointments	5	84	10
Is enthusiastic about instructional content	3	87	10
Demonstrates academic honesty	3	93	4

Table 2: Professional Relationships

	% inappropriate	% appropriate	% exceptional
Maintains high expectations for self and others	3	89	7
Demonstrates respect for the beliefs, views, and needs of self and others	3	85	11
Demonstrates behaviors that exemplify recognition and promotion of diverse opinions and perspectives of individuals and groups	3	89	8
Demonstrates compassion for those experiencing difficulty	2	91	6
Demonstrates patience/flexibility with self or others during the learning process	2	90	7
Demonstrates enthusiasm about collaborating or working with others	3	90	7
Maintains high expectations for self and others	3	86	10

Table 3: Critical Thinking and Reflective Practice

	% inappropriate	% appropriate	% exceptional
Demonstrates the ability to think problems through in a critical manner	3	86	11
Addresses issues of concern professionally	3	91	6
Accepts constructive criticism from peers, instructors, and/or professors	3	87	10
Attempts to solve problems independently but seeks help when needed	3	90	7
Exhibits the ability to reflect on program readings or class discussions	3	86	11
Defines and identifies specific course/program goals for continuous personal improvement	3	90	7
Self-assesses personal progress over time	3	89	7

An examination of the third question: *For which dispositions do teacher candidates exhibit behaviors that do not meet the expectations of faculty?* found that areas of concern with respect to inappropriate behaviors seemed to be those which are aligned with professionalism,

and in particular with the ability of candidates to be punctual and prepared for class and in candidate ability to demonstrate enthusiasm for new and challenging material. Only 3% or fewer candidates were identified as being unacceptable on the other nineteen areas.

### *Discussion*

Dispositions and their place, if any, in the educational system have been a tempestuous topic of debate for many years. Central to the debate are five primary concerns: What is a disposition? Should dispositions be evaluated? If so, which dispositions should be evaluated? How can dispositions be effectively measured? And finally, who should evaluate these dispositions?

In this study the researcher team operationally defined dispositions as *tendencies or beliefs that are conveyed or made public through observable behaviors*. It is, therefore, the behavior and not the belief that is called into question. Although many would agree that there do exist a variety of beliefs that may be construed as contrary to the ethics of the profession; unless acted upon, within the parameters of their contractual obligation, they cannot be evaluated and the individuals who hold the beliefs must be protected. To overstep this boundary would be to attack academic freedom at its roots; to accept only those who hold the same beliefs as the majority, not only acts in defiance of diversity but contravenes the very principle that it attempts to uphold. Failure to uphold this principle would impinge upon the most fundamental of democratic rights and freedoms guaranteed by the constitution; the freedom to think what we want and the freedom to voice our opinions in an appropriate forum. If institutions take away this right then they relegate education to a system of propagating the status quo rather than upholding it as a means of redirecting our future. This is not to say that all views must be welcomed, but the right to hold any view, no matter how vehemently one may be opposed to it, must be defended. Having said this, it is up to the institution to identify what dispositions are most significant to them.

Once acceptable dispositions have been defined, because of the subjective nature of dispositions, the institution must then determine whether they should employ the use of qualitative, quantitative, or mixed methods of evaluation. Both pragmatists and analytic philosophers from Dewey to Bertrand Russell have discussed degrees of “goodness”. One question with which the researchers struggled was whether or not such degrees of goodness exist. As evaluators, we had to decide whether we should be more concerned with the degrees of “badness” than of “goodness” since this is what seems to be of most concern to educators. It was from this line of thinking that the instrument came to be based on a deviation rather than a linear scale. By employing such a scale, instructors are able to assess candidates in terms of both degrees of “goodness” and degrees of “badness”. During analysis this allows us as an institution to examine the distribution of the scores. As was found in this study, responses seemed to be negatively skewed which suggests that more candidates exhibit higher degrees of “goodness” than of “badness”.

The evaluation of dispositions extends beyond the individual to include the impact of the individual upon other individuals. The problem here is that the peripheral behaviors which manifest themselves in the application of a particular teaching methodology can often remain unchecked. Although instruments of measure can be defined and applied to content, it is imperative for institutions to develop instruments that can be utilized in the evaluation of the intangibles of teaching. The problem is further exacerbated when the ability of one individual to stand in judgment of another is called into question. Although few would question the authority by which an instructor or professor grades assigned work in a content area, many remain skeptical of his or her ability to evaluate dispositions. Colleges of education across the country place emphasis on the teacher as a reflective practitioner, but without the ability to identify and assess dispositions this expectation becomes a moot point. This concern was addressed through

the use of multiple perspectives. Under the model examined in this study, candidates must be evaluated by each of their instructors at the end of each term of study. This lessens the probability of a personality conflict between the candidate and an individual instructor. By requiring multiple assessments degrees of “goodness” and “badness” can be examined modally, or through the use of cut scores based on either mean or aggregate scores.

The question with respect to both validity and reliability of the evaluative measures applied to dispositions extends beyond the means that are used to assess dispositions, to the validity of the task itself. Before a disposition can be evaluated in a reliable and valid manner, there must exist some consistency of meaning shared by the institution and the candidate. Too often however, inadequacies of language, vagueness and misinterpretations of the terms, impede the clarity that is vital to evaluation. The instrument that was employed in this study was first examined for rater-reliability to ensure a consistency of what was being assessed (Rinaldo, Denig, Sheeran, et al., 2009). Having established this, the responses were then examined to determine both validity and reliability. A factor analysis using maximum likelihood extraction and five iterations seems to indicate high construct validity. Content validity was also examined and found to be strong through an examination of the program requirements, syllabi, and required common assignments. The reliability of the scores was deemed to be high based on the high Cronbach’s alphas that were found for each of the three areas: Professionalism, Professional Relationships, and Critical Thinking and Reflective Practice.

### **Conclusion**

Despite ongoing concern for methods of evaluation which extend beyond the cognitive to include the affective or human aspects of teaching, the assessment of dispositions as an integral part of the course of study has been frowned upon by many institutions due to what they perceive

as a lack of objectivity. Although many would agree that dispositions are integral to the quality and professionalism of the teacher few are willing to evaluate them, feeling that it is a matter better left to the college as a whole. This has led to a focus on the cognitive abilities of teacher candidates as they relate to content area or theory based pedagogy which has hindered colleges of education in their ability to develop well rounded professionals.

This research seems to indicate that it is possible to construct an instrument and process that will enable colleges of education effectively to assess the dispositions of their candidates. The instrument that the research team developed and the process of evaluation that have been examined in this study are presently being utilized by 36 institutions across the United States and the United Kingdom, and data collection from all of the participating institutions is continuing. It is the opinion of the researchers that these findings extend beyond the field of education and can be utilized in other professional schools such as those which prepare candidates for careers in law, and medicine. It is, after all, the responsibility of the institution to ensure that graduates possess not only the content knowledge required effectively to administer their duties, but also to ensure that these graduates possess the intangible qualities that are required of their future positions. It is unfair to both the candidate and the students whom they will teach in the future to leave this evaluation to principals in their assigned schools.

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