

The Development and Validation of the Teacher Dispositions Index

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Abstract

The purposes of this study were to develop and validate a quantitative instrument (Teacher Dispositions Index (TDI)) that measures the dispositions of effective teachers as specified by the Interstate New Teacher Assessment and Support Consortium (1991). To provide evidence of the TDI's reliability and validity, we distributed the TDI to 105 undergraduate students enrolled in an instructional systems course in a College of Education at a Midwestern metropolitan university. The TDI could be used to assess teacher candidate dispositions over the course of pre-service preparation and to help candidates determine if teaching is an appropriate professional fit.

Introduction

There is a strong national spotlight on teacher quality. Current projections indicate large numbers of new teachers will be entering our schools in the next decade (U.S. Department of Education, 1999; Yasin, 1998). With the implications of the recent "No Child Left Behind Act" (Center on Education Policy, 2002), teacher preparation programs must respond with data-driven means of improvement. As nationwide attempts are made to improve schools and school systems with increased student achievement, teachers are the most important factor in improving schools (Darling-Hammond, 1997). Teacher preparation programs have a unique opportunity to have a significant impact on teacher quality. Teacher quality includes the areas of content knowledge, pedagogical skills, and dispositions. While there are currently tests and instruments available to assess abilities in the first two categories, there is a need to be able to define and measure dispositions, as well. The purposes of this study were to develop and validate a quantitative instrument that measures the dispositions of effective teacher candidates.

Dispositions Defined

Multiple definitions of dispositions can be found in the literature. Katz (1993) referred to a disposition as "a pattern of behavior exhibited frequently and in the absence of coercion, and constituting a habit of mind under some conscious and voluntary control, and that is intentional and oriented to broad goals" (p. 10). According to the National Council for the Accreditation of Teacher Education (2002), teacher candidates should be

able to work with students, families, and communities to reflect the dispositions of professional educators as delineated in professional, state, and institutional standards. Several key dispositions of professional educators include a caring attitude, sensitivity to student differences, democratic values, and commitment to teaching. Dispositions have also been defined as values, commitments, or ethics that are internally held and externally exhibited (Cudahy, Finnan, Jaruszewicz, & McCarty, 2002). Not surprisingly, there is a significant body of research indicating that teacher dispositions strongly influence the impact teachers will have on student learning and development (Collinson, Killeavy, & Stephenson, 1999; Combs, 1974).

Teacher candidates enter preparation programs with a minimum of 13 years of experience as students. During that time, they have formed many opinions, beliefs, attitudes, and values about schooling. Often these opinions, beliefs, attitudes, and values are aligned with research-based ideas on effective teaching. When this occurs, candidates are identified as having the “dispositions to teach” (Collinson et al., 1999). Florio-Ruane and Lensmire (1990) cautioned that sometimes prospective teachers do not enter the profession with the necessary dispositions for effective teaching. In these cases, teacher preparation programs must help teacher candidates to develop the necessary dispositions to be effective teachers.

Dispositions as Effective Teaching

Essential to identifying dispositions of effective teachers is an examination of research on effective teaching. In the last three decades, a revolution has occurred in the definitions of good teaching (Borich, 2000). Effective teaching research shifted from exclusively studying teachers to include their effects on students. The goal has been to discover which teacher behaviors promote desirable student performance. What has emerged from the research is a rich and varied picture of effective teaching that includes teacher knowledge, pedagogical skills, and dispositions.

Good and Brophy (1987, 1997) identify 10 teacher behaviors that show a positive relationship to desirable student performance. The first five are consistently supported by research studies, and the second five have some support and are logically related to effective teaching, although additional studies are necessary to identify explicitly how these behaviors should be used (Brophy, 1989; Brophy & Good, 1986; Dunkin & Biddle, 1974; Rosenshine, 1971; Teddlie & Stringfield, 1993). The first five, referred to as key behaviors, are lesson clarity, instructional variety, teacher task orientation, engagement in the learning process, and student success rate. The second five, identified as helping behaviors, serve as catalysts for implementing the following five key behaviors: student ideas and contributions, structuring, questioning, probing, and teacher affect. Similarly, Cotton (1995) describes effective teachers as those who have clear standards for classroom behavior and clear and focused instruction, use effective questioning techniques, provide feedback, and use a variety of assessment strategies. In addition, Cotton describes effective teachers as those who have positive interactions with their students and are caring.

Burden and Byrd (2003) focus on decision-making as the basic teaching skill. Decision-making involves giving consideration to a matter and then selecting the identity, character, scope, or direction of something; making choices; and arriving at a solution that ends uncertainty. Madeline Hunter (1984) defines teaching as “the constant stream of professional decisions that affects the probability of learning: decisions that are made and implemented before, during, and after interaction with the student” (pp. 169-170). Teacher decision-making research includes studies of teacher planning, interactive decision-making, and judgments (Borko & Niles, 1987; Clark & Peterson, 1986; Shavelson & Stern, 1981). In addition, research strongly supports that successful teachers are thoughtful teachers (Glickman, Gordon, & Ross-Gordon, 2001).

In 1996, Collinson asked outstanding teachers to identify characteristics of effective teachers. The responses identified professional, interpersonal, and intrapersonal knowledge. In regard to professional knowledge, teachers indicated a disposition toward continuous learning, curiosity, creativity, flexibility and pride in their effort. Specific to interpersonal knowledge, exemplary teachers were reflective, showed respect of self and others, and displayed courage. When talking of intrapersonal knowledge, outstanding teachers consistently mentioned that effective teachers displayed care and compassion and respect of self and others.

Costa and Kalik (2000) identify a strong correlation between effective thinking and effective teaching. They draw upon the list of 16 habits of mind to “help educators develop thoughtful, compassionate, and cooperative human beings who can live productively in an increasingly chaotic, complex, and information-rich world” (pp. xii-xiii). The following is a list of the habits of mind: persisting; managing impulsivity; listening with understanding and empathy; thinking flexibility; metacognition; striving for accuracy; questioning and posing problems; applying past knowledge to new situations; thinking and communicating with clarity and precision; gathering data through all senses; creating, imaging, innovating; responding with wonderment and awe; taking responsible risks; finding humor; thinking interdependently; and remaining open to continuous learning. Closely aligned with Costa and Kalik’s work is Dimension 5 in Marzano’s (1992) Dimensions of Learning Program entitled “Productive Habits of Mind”, which identifies the following three broad categories: self-regulation, critical thinking, and creative thinking.

As is evident in the research, effective teaching is complex and challenging to define. In recent years, some educators have focused on broadening the skill-centered view of teaching and learning to include a more dispositional view. This has implications for teacher preparation programs that will need to assure their programs encompass not only content knowledge and pedagogical skills, but also dispositional skills such as opinions, attitudes, beliefs and values.

Assessment of Dispositions

An examination of the research on teacher dispositions indicates several approaches have been suggested for the assessment of dispositions. Wilson and Cameron

(as cited in Wasicsko, 2000) used journaling to assess student teachers' perceptions and provide insight into their thinking. Wasicsko (1977) developed and tested self-instruction materials to use in selecting teachers using perceptual scales. In recent work Wasicsko (2000) applied the research on perceptions of effective teachers to assist students in self-assessment of dispositions through the use of case studies. Biographical and metaphorical assessments, such as discussion where students are asked to support their points of view by making explicit connections to life-history events and interpretation of those events and incorporating analytical discourse assignments, such as *Myself as a Student* and *Myself as a Teacher*, have also been used to assess dispositions (Holt-Reynolds, 1991). In addition, portfolios hold promise for assessing and demonstrating teacher dispositions (Antonek, McCormick, & Donato, 1977; Sherbet, 1996-97).

One of the most difficult situations faced by teacher educators is encountering candidates who meet the requirements of content knowledge and pedagogical skills, yet lack the dispositions essential to effective teaching. In a College of Education at a Midwestern metropolitan university approximately 10% of the students enrolled in teacher preparation programs during a 5-year period from January 1996 until June 2001 lacked the necessary dispositions to be effective teachers (B. Schnabel, personal communication, June 24, 2003). Because of the need to identify such students early in their teacher preparation program, in this study we focused on developing a self-assessment and awareness instrument for students that could be used throughout their teacher preparation program. A review of the research that utilized teacher disposition or teacher effectiveness instruments failed to identify a quantitative instrument that measures the dispositions of effective teachers as specified by the Interstate New Teacher Assessment and Support Consortium (INTASC) (1991) (e.g., Barton, Andrew, & Schwab, 1994; Cudahy et al., 2002; Keirse, 1998; Schaffer, 2003).

INTASC Principles

We developed the Teacher Dispositions Index (TDI) to align with the dispositions of effective teachers as specified under INTASC's (1991) Model Standards for Beginning Teacher Licensing and Development. The Model Standards for Beginning Teacher Licensing and Development include 10 principles and their corresponding dispositions.

- Principle 1: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
- Principle 2: The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social, and personal development.
- Principle 3: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
- Principle 4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

- Principle 5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- Principle 6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- Principle 7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- Principle 8: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual and social development of the learner.
- Principle 9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- Principle 10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being. (INTASC, 1991)

Research Questions

We addressed the following research questions during this study: (a) What unique constructs are measured by the dispositions of effective teachers that align with the INTASC (1991) principles? (b) Can these constructs be measured with an acceptable degree of reliability and validity? (c) Are students' perceptions of their dispositions as effective teachers related to their age, gender, or certification level?

Method

The procedures used to develop and validate the TDI included an item development phase as well as procedures to provide evidence of the TDI's content and construct validity and an estimation of its reliability. The procedures used in this study replicated those used by Schulte et al. (2002) in the development and validation of the School Ethical Climate Index.

Item Development

We developed items by reviewing instruments that assess teacher effectiveness and/or personality (e.g., Barton et al., 1994; Cudahy et al., 2002; Keirse, 1998; Schaffer, 2003). In addition, 12 doctoral students enrolled in an applied advanced statistics class served as an item development panel. The group of students included elementary, middle, and high school administrators; public and private school teachers; and university professors. At the time of this study, the group of students had a mean of 14.92 ($SD = 7.28$) years of experience in the field of education.

We introduced the topic of dispositions of effective teachers to the students in the item development panel by providing them with an overview of the INTASC (1991) principles and corresponding dispositions. We provided sample disposition items for each of the INTASC principles assessed by the TDI. Then, the students broke into small groups and generated disposition items for the INTASC principles. The students did not formally develop items for principles 4, 8, and 10 because we believed that the items developed for principles 1 and 2 related to principle 4, items developed for principles 2 and 3 related to principle 8, and items developed for principles 7 and 9 related to principle 10. The students and the use of existing sources (Barton et al., 1994; Cudahy et al., 2002; Keirse, 1998; Schaffer, 2003) helped to generate 79 items that were reviewed for content validity.

Validation of the TDI

Content validity. A group of 13 persons with experience in teacher education reviewed the 79 TDI items to provide evidence of the TDI's content validity. None of the members of the content validity panel was a member of the item development group. The content validity panel included 8 professors who teach in a College of Education, 1 coordinator of field experiences and student teaching at a College of Education, and 4 cadre associates who are master teachers working as mentors in a unique, collaborative university program. The reviewers' years of experience in the field of education ranged from 10 to 30 years with a mean of 22.54 years ($SD = 7.05$).

We asked the reviewers to rate the appropriateness of the 79 TDI items in measuring the dispositions of effective teachers broken down by INTASC (1991) principle on a 3-point scale (1 = not appropriate, 2 = marginally appropriate, and 3 = very appropriate). We provided the reviewers with each INTASC principle measured by the TDI and its corresponding dispositions. We asked the reviewers to provide ways to improve the items that they rated "1" or "2", if possible.

We analyzed the appropriateness ratings of the 13 reviewers in order to determine which items to retain in the TDI. Based on the input provided by the reviewers, we attempted to reword items with ratings below 3. Of the original 79 TDI items, we eliminated 17 items, reworded 11 items, and added 2 new items based on the reviewers' comments, resulting in a 64-item TDI.

Subjects. To further validate the TDI and to provide an estimation of its reliability, we distributed the 64-item TDI to 105 undergraduate students enrolled in an instructional systems class for teacher education majors. There were 21 males and 84 females in the sample. The age of the respondents ranged from 19 to 50 years with a mean of 24.98 years ($SD = 6.65$). The majority of the students were juniors (50%) or seniors (31%). Most of the students were pursuing elementary (48%) or secondary (29%) certification levels.

Data collection procedures. We surveyed subjects by going to five sections of an undergraduate instructional systems course in the College of Education at a Midwestern metropolitan university. The survey information included (a) a cover letter that explained

the purposes of the study and informed the subjects that participation was voluntary and that responses would be anonymous, (b) demographic questions used to describe the sample, (c) the 64-item TDI, and (d) a bag of candy that served as a small incentive. Before distributing the survey information, we contacted the Dean of the College of Education, the departmental chairperson of the Teacher Education Department, and the professors of the surveyed classes to gain their approval to distribute the survey. We explained the purposes of the study before distributing the surveys to the classes, and then waited while the respondents completed the surveys which took approximately 10 minutes. We asked the students to respond to the TDI items by giving their perceptions of their dispositions as effective teachers using a response scale ranging from “1” strongly disagree to “5” strongly agree.

Data Analyses

We conducted the following statistical analyses to investigate the construct validity and reliability of the TDI:

1. We evaluated the construct validity and dimensionality of the TDI with exploratory factor analyses using a principal axis factoring method followed by a varimax rotation of the number of factors extracted. We used the principal axis factoring method rather than the principal components method because we wanted to investigate common variance in order to determine the number of dimensions that the TDI measured (Kachigan, 1991).
2. We estimated the reliability of the TDI subscales using coefficient alpha (Cronbach’s alpha) (Crocker & Algina, 1986).
3. We summarized the respondents’ perceptions of their dispositions as effective teachers by calculating mean scores for each of the TDI subscales.
4. To investigate the relationship between respondents’ scores on the TDI subscales and their age, gender, and certification level, we conducted correlation analyses and independent t-tests. Because we conducted multiple statistical tests, we used a .01 level of significance to control for Type I errors.

Results

Factor Analysis

The initial factor analysis indicated that a two-factor solution fit the data. The scree plot provided visual confirmation of the initial eigenvalue information. The first factor had an eigenvalue of 41.38 and accounted for 64.66% of the total variance. The second factor had an eigenvalue of 2.82 and accounted for 4.40% of the total variance. The two factors accounted for approximately 69% of the variance in the TDI items.

Using a factor loading cutoff value of .50, the factor loadings for the two-factor solution revealed that the TDI items measured a student-centered dimension and a professionalism, curriculum-centered dimension (see Table 1). We removed 19 of the original 64 TDI items that loaded on both factors so that each retained item loaded on one and only one factor. This was necessary because we wanted to construct two relatively

independent composite scores. Thus, the results of the factor analysis yielded a 45-item TDI that measures two unique constructs (see Table 1).

Table 1

Teacher Dispositions Index Items with Factor Loadings

TDI Subscale	Factor Loading	
<i>Student-Centered Subscale</i>	<i>Factor 1</i>	<i>Factor 2</i>
1. I believe a teacher must use a variety of instructional strategies to optimize student learning. (P2)	.769	.349
2. I understand that students learn in a many different ways. (P3)	.819	.322
3. I demonstrate qualities of humor, empathy, and warmth with others. (P5)	.820	.305
4. I am a thoughtful and responsive listener. (P6)	.646	.464
5. I assume responsibility when working with others. (P7)	.688	.485
6. I believe that all students can learn. (P2)	.667	.433
7. I believe it is important to involve all students in learning. (P3)	.822	.420
8. I believe the classroom environment a teacher creates greatly affects students' learning and development. (P2)	.807	.391
9. I view teaching as an important profession. (P9)	.896	.274
10. I understand that teachers' expectations impact student learning. (P3)	.768	.386
11. I view teaching as a collaborative effort among educators. (P7)	.669	.381
12. I understand students have certain needs that must be met before learning can take place. (P2)	.743	.431
13. I am sensitive to student differences. (P3)	.750	.460
14. I communicate caring, concern, and a willingness to become involved with others. (P6)	.713	.421
15. I am punctual and reliable in my attendance. (P9)	.631	.393
16. I maintain a professional appearance. (P9)	.637	.376
17. I believe it is my job to create a learning environment that is conducive to the development of students' self-confidence and competence. (P2)	.713	.447
18. I respect the cultures of all students. (P3)	.784	.400
19. I honor my commitments. (P9)	.706	.468
20. I treat students with dignity and respect at all times. (P5)	.727	.424
21. I am willing to receive feedback and assessment of my teaching. (P9)	.690	.456
22. I am patient when working with students. (P5)	.692	.471
23. I am open to adjusting and revising my plans to meet student needs. (P7)	.723	.488
24. I communicate in ways that demonstrate respect for the feelings, ideas, and contributions of others. (P9)	.779	.462
25. I believe it is important to learn about students and their community. (P7)	.855	.337

Table 1 (Continued)

Teacher Dispositions Index Items with Factor Loadings

TDI Subscale	Factor Loading	
	<i>Factor 1</i>	<i>Factor 2</i>
<i>Professionalism, Curriculum-Centered Subscale</i>		
1. I am committed to critical reflection for my professional growth. (P9)	.406	.631
2. I cooperate with colleagues in planning instruction. (P7)	.441	.668
3. I actively seek out professional growth opportunities. (P9)	.323	.721
4. I uphold the laws and ethical codes governing the teaching profession. (P9)	.494	.611
5. I stimulate students' interests. (P1)	.430	.754
6. I value both long term and short term planning. (P7)	.498	.594
7. I stay current with the evolving nature of the teaching profession. (P9)	.203	.748
8. I select material that is relevant for students. (P1)	.381	.762
9. I am successful in facilitating learning for all students. (P3)	.317	.740
10. I demonstrate and encourage democratic interaction in the classroom and school. (P5)	.420	.696
11. I accurately read the non-verbal communication of students. (P6)	.432	.521
12. I engage in discussions about new ideas in the teaching profession. (P9)	.218	.713
13. I select material that is interesting for students. (P1)	.445	.723
14. I provide appropriate feedback to encourage students in their development. (P2)	.499	.614
15. I engage in research-based teaching practices. (P9)	.233	.721
16. I create connections to subject matter that are meaningful to students. (P1)	.459	.704
17. I listen to colleagues' ideas and suggestions to improve instruction. (P7)	.487	.589
18. I take initiative to promote ethical and responsible professional practice. (P9)	.449	.762
19. I communicate effectively with students, parents, and colleagues. (P9)	.483	.611
20. I work well with others in implementing a common curriculum. (P7)	.427	.670

Note. After each item the corresponding INTASC (1991) principle is specified, such as P1 for Principle 1. Items were developed from the following sources: Barton et al. (1994), Cudahy et al. (2002), Keirse (1998), and Schaffer (2003).

Reliability Analysis

We calculated Cronbach's alpha for each of the two TDI subscales. The reliability estimate for the 25-item student-centered subscale was .98. The mean of the corrected item-total correlations was .84 ($SD = .05$). The reliability estimate for the 20-item professionalism, curriculum-centered subscale was .97. The mean of the corrected item-total correlations was .78 ($SD = .05$).

Relationship of Respondent TDI Perceptions to Age, Gender, and Certification Level

There was no statistically significant relationship between respondents' perceptions of their dispositions as effective teachers on both the student-centered ($r(100) = -.177, p = .074$) and professionalism, curriculum-centered ($r(100) = -.097, p = .330$) subscales and their age. Likewise, there was no statistically significant relationship between respondents' perceptions of their dispositions as effective teachers on both the student-centered and professionalism, curriculum-centered subscales and their gender or certification level (see Table 2).

Table 2

Means, Standard Deviations, and t-tests for the TDI Subscales by Gender and Certification Level

Scale	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
<i>Student-Centered Subscale</i>					
Male ($n=21$)	4.41	0.83			
Female ($n=84$)	4.54	0.70	-0.764	103	.447
Elementary ($n=50$)	4.50	0.90			
Secondary ($n=30$)	4.44	0.68	0.336	78	.738
<i>Professionalism, Curriculum-Centered Subscale</i>					
Male ($n=21$)	4.10	0.86			
Female ($n=84$)	4.09	0.71	0.053	103	.958
Elementary ($n=50$)	4.05	0.86			
Secondary ($n=30$)	4.02	0.73	0.173	78	.863

Discussion

Reliability and Validity of the TDI

The results of this study indicate that the dispositions of effective teachers can be assessed with an acceptable degree of reliability and validity. The reliability coefficients for the two TDI subscales were greater than .95, indicating that respondents were consistent in their responses to the TDI items. The item development phase and the content validity procedures ensured that the TDI measured the dispositions of effective teachers as specified in the INTASC (1991) principles. The results of the factor analysis indicated that the TDI measures a student-centered dimension and a professionalism, curriculum-centered dimension, which provides evidence of construct validity. The results of the correlation analyses and t-tests indicated that the respondents' perceptions of their dispositions as effective teachers were not dependent on their age, gender, or certification level.

Conclusion

This study indicates that the TDI is a reliable and valid instrument for measuring the dispositions of effective teachers. Teacher educators have traditionally taught and assessed the knowledge and pedagogical skills of teacher candidates through the use of portfolios, observations, and criterion-referenced and standardized tests. Teaching and assessing dispositions brings about a new challenge. Dispositions address human behavior. Because of this, awareness and self-reflection are essential to the learning process and to determining one's own growth. The TDI has many potential uses for teacher preparation programs. First, by completing the TDI early in their pre-service program and at several checkpoints over the course of preparation, candidates may become increasingly aware of the dispositions of effective teachers and may be able to apply, observe, and reflect on these dispositions throughout the teacher preparation process. Second, the TDI offers the opportunity for early self-assessment to help teacher candidates determine if teaching is an appropriate professional "fit". If not, additional support to teacher candidates to help them develop the dispositions of effective teachers could be made available, or candidates could be coached into another program of study. Third, faculty members could reinforce dispositional issues in coursework as well as tie coursework assessment to the defined dispositions. Finally, the TDI gives teacher candidates, faculty, cooperating teachers, and supervisors working with student teachers a reliable and valid instrument to provide documentation and common language to communicate as they work together in the development, refinement, and assessment of teacher dispositions.

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