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Measuring the Developing Dispositions of Pre-service and Beginning Teachers

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Measuring the Developing Dispositions of Pre-service and Beginning Teachers

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ABSTRACT

Teacher education programs at New York University focus on developing two key dispositional dimensions of quality teachers: teaching efficacy and caring. Quality teachers believe in their ability to make value-added changes to students' overall development. They also care about social justice and make efforts to provide equitable classroom environments. In this paper, we first discuss the development and validation of Educational Beliefs Questionnaire (EBQ) designed to assess pre-service teachers' beliefs in teaching efficacy and caring. We then examine associations between participants' educational beliefs, length of participation in teacher education programs, and degree level being sought. We also follow changes in participants' educational beliefs during their student teaching year. Teacher preparation programs can utilize the EBQ for self-assessment and improvement of specific program components.

INTRODUCTION

Over the past 15 years, efforts to increase accountability for student achievement in U.S. public schools have been spurred by the passage of legislation and policy initiatives such as the *Improving America's Schools Act* (IASA) (US Congress, 1994a), *Goals 2000: Educate America Act* (US Congress, 1994b), and the *No Child Left Behind Act* (US Congress, 2002). Schools are now held accountable for ensuring that all children, regardless of racial/ethnic, language, and socioeconomic background, make adequate progress towards achieving standards that are aligned with the general curriculum. In this

climate, teacher education has become a focus of the debate on improving student achievement, and teacher education programs at colleges and universities have been under pressure to provide quality training for its students. To receive recognition as programs that produce teachers equipped with the skills to help all children learn, colleges and universities have sought accreditation as a way to assure the public about the quality of their teacher education programs.

In New York State, higher learning standards for student achievement have also resulted in a new set of regulations for teacher education mandated by The Regents and the New York State Education Department. They wanted to ensure that teachers would be prepared to help students attain the new achievement standards. The new regulations, first announced in 1997, went into effect in February 2004, and the most important changes made to the existing system included the following: content background needed by teachers at all levels; extensive fieldwork before and during student teaching stage of the preparation; requirement for special education teachers to have a prior certification in a general teaching area and special education certificate at the same level; and, creation of extension certificates in bilingual education and literacy specialists (Taub, Tobias, & Mayher, 2006). The regulations also mandated core competencies for all teachers; The Regents required certification programs to show how each core competency would be met; and all programs needed to be externally accredited by a body other than the State Department of Education (Taub, Tobias, & Mayher, 2006).

Effects of Reform at New York University School of Education

In response to these new regulations, The Steinhardt School of Education at New York University formed a Teacher Education Task Force in 1997, consisting of the entire teacher education faculty. The Task Force met regularly for four years, developing, reorganizing, and implementing new teacher education curricula at both undergraduate and graduate levels across the school. In addition, the Department of Teaching and Learning at New York University established a set of multi-dimensional criteria for quality teachers that are consistent with current theories on teaching and learning and national teacher education accreditation criteria. A quality teacher has an in-depth knowledge of the content that he/she is teaching. The teacher also has pedagogical knowledge and skills needed for effective classroom management. In addition, a quality teacher has high teacher-efficacy, which is the belief that teaching can make value-added changes to students' academic and social development, despite their various social backgrounds. Furthermore, a quality teacher also cares about social justice and makes efforts to establish more equitable classroom environments. Given this framework, the programs in the Department of Teaching and Learning (T & L) were revised and designed to provide student teachers with course work, practicum, and advisement, focused on developing two key dispositional dimensions of quality teachers: teaching efficacy and caring.

To fulfill the accreditation function required by the new reform initiatives, the faculty selected The Teacher Education Accreditation Council (TEAC), an organization whose aim is to support the preparation of skilled, caring professional educators. The faculty unanimously voted for TEAC because it was believed that TEAC's requirements

and procedures for accreditation would serve to support the school's efforts to create a "culture of reflection and evaluation" as well as enhance its process of renewing its teacher education programs (Taub, Tobias, & Mayher, 2006). The quality principles established by TEAC which accreditation-seeking institutions must address are: I) evidence of student learning, II) valid assessment of student learning, and III) institutional learning (See http://www.teac.org/accreditation/summaryoutline.asp#standard for the full outline of quality principles). In order to conduct the self-assessment process required of accreditation-seeking institutions, the Center for Research on Teaching and Learning (CRTL) was created. Since its creation, the CRTL has developed various systems and instruments for assessment of the direct effects of instruction on the learning of NYU teacher education students, and eventually, the indirect effects of that instruction on the learning of their students (Taub, Tobias, & Mayher, 2006). Thus, in documenting evidence of student learning and demonstrating how NYU teacher education graduates have achieved the level of competence described by the Regents and the New York State Education Department, multiple measures and different styles of assessment were used. These included course grades, self-assessments, observations of teaching, state certification test scores, and post-graduation information (Taub, Tobias, & Mayher, 2006). This paper focuses on the development, validation, and results derived from one of these measures, the Educational Beliefs Questionnaire (EBQ).

The Present Study

Research has shown that teachers' belief systems constitute one of the most important factors that affect teacher development and performance. Therefore, to assess the development of pre-service teachers' dispositions as they progress through their teacher preparation and induction into the profession, the faculty of Department of T & L and researchers at CRTL collaborated to construct an instrument called the Educational Beliefs Questionnaire. The measure was developed with faculty input using a process in which they were asked to rank order a list of belief categories in terms of their impact on teachers' classroom practice. The list was developed based on a review of professional literature on educational beliefs and additional suggestions made by faculty members. The broad areas included beliefs about the importance of content knowledge in pre-service programs, the nature of teaching and learning, the impact of students' cultural and family backgrounds on achievement, and the role of educational research (Taub, Tobias, & Mayher, 2006). As a result of this input and the literature review, a survey draft was created, comprised of statements of specific beliefs aligned with the NYU teacher education claims; the responses were coded on a six-point Likert-type scale reflecting degrees of agreement or disagreement.

The faculty and researchers at the CRTL hypothesized that two latent belief dimensions would underlie the patterns of student responses to the items. One factor related to a belief in the efficacy of teaching for promoting student learning, and another factor related to caring, equity, and social justice (Taub, Tobias, & Mayher, 2006). Based on extant theoretical and empirical literature on measurement of teacher efficacy and caring, the construct of teaching efficacy was defined as the extent to which a teacher

believes he/she can make a difference in students' academic achievement and behavioral development beyond their home and community influences. The construct of caring was defined as the degree to which a teacher cares about equity and social justice and the way in which the teacher creates an equal and fair classroom.

The purpose of this paper is three-fold. Following a review of the existing research that has indicated the importance of teacher dispositions on student outcomes and the need for a reliable and valid measure of teacher dispositions, we first discuss the development, pilot testing, and validation of the EBQ. Second, we explore the associations between the development of pre-service teachers' beliefs in their teaching efficacy and caring, the length of participation in the NYU teacher education programs, and the degree level being pursued. Third, we examine the development of these participants' beliefs in teaching efficacy and caring as they engage in student teaching and experience their first years in the profession.

RELATED LITERATURE

Teacher efficacy can generally be thought of as one's belief in the value of education and confidence in one's ability to be a successful, effective teacher. Research on teacher efficacy has evolved over the past 40 years, during which numerous studies have been conducted revealing strong connections between teacher efficacy, teacher behavior, and student achievement (Ashton & Webb, 1986; Rosenholtz, 1989; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Given the impact of teacher efficacy beliefs on student achievement, researchers have investigated various factors that contribute to higher teacher efficacy, including principal leadership (Hipp & Bredeson,

1995; Nir & Kranot, 2006; Ross & Gray, 2006), organization of school community (Lee, Dedrick, & Smith, 1991; Warren & Payne, 2001), collaboration among teachers (Puchner & Taylor, 2006), coaching or mentor-protégé relationships (Clifford & Green, 1996; Ebmeier, 2003; Ross, 1992; West, 2002), participation in teacher research and decision-making (Henson, 2001), and specific professional development or in-service programs designed to enhance teacher efficacy (Fritz, Miller-Heyl, Kreutzer, & MacPhee, 2001; Ross, 1994; Ross & Bruce, 2007; Scribner, 1999).

Research has also examined the benefits associated with high teacher efficacy beliefs, such as commitment to the teaching profession (Rots, Aelterman, Vlerick, Vermeulen, 2007; Ware & Kitsantas, 2007), lower stress levels (Egyed & Short, 2006; Jennett, Harris & Mesibov, 2003), willingness to implement innovative instructional practices (Ghaith & Yaghi, 1997), greater patience with struggling students (Gibson & Dembo, 1984), more humanistic orientation toward discipline or classroom management (Woolfolk & Hoy, 1990), and greater receptivity toward inclusive education (Almog & Shechtman, 2007; Podell & Soodak, 1993; Romi & Leyser, 2006; Skaalvik & Skaalvik, 2007; Soodak, Podell, & Lehman, 1998). Other beneficial effects of strong teacher efficacy beliefs include increases in students' self-esteem (Borton, 1991), student motivation (Midgley, Feldlaufer, & Eccles, 1989), parental involvement (Garcia, 2004), and school-community partnerships (Garcia, 2004). Despite such extensive research consistently reporting the positive effects of strong teacher efficacy beliefs, there is considerable debate over the meaning of teacher efficacy and the instruments used to measure this construct.

Conceptualizations and Interpretations of Teacher Efficacy

An early definition of teacher efficacy describes it as "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137, as cited in Tschannen-Moran et al., 1998). The notion that teacher' beliefs about their abilities as teachers are important for student achievement has generally been conceptualized in terms of Locus of Control theory and Social Learning theory attributed to Rotter (1966) and Bandura (1977). Most studies on teacher efficacy have been based on one of these theoretical frameworks.

The first study on teacher efficacy beliefs based on Rotter's theoretical framework was research conducted by the Rand Corporation in evaluating an elementary school reading program. This study used 2 items to measure teacher efficacy; teachers were asked to report their degree of agreement with the following statements: 1) "When it comes right down to it, a teacher really cannot do much because most of a student's motivation and performance depends on his or her home environment," and 2) "If I try really hard, I can get through to even the most difficult or unmotivated students" (Berman & McLaughlin, 1977, as cited in Soodak & Podell, 1996). These items were designed to assess the extent to which teachers believed that they could control the reinforcement of their actions. The control may be within the individual teachers or in the environmental factors, and teachers with high efficacy levels believed that they possess the control or the ability to influence student motivation and achievement (Tschannen-Moran et al., 1998).

In the theoretical framework based on Bandura's work (1977), teacher efficacy is thought of as a type of self-efficacy. Bandura defined self-efficacy as "beliefs in one's

capacity to organize and execute the course of action required to produce given

attainments" (Bandura, 1997, p. 3). According to Bandura, there are two cognitively-

based sources of motivation: outcome expectancy and efficacy expectations (Soodak &

Podell, 1996). Outcome expectations are an individual's estimation that certain actions or

behaviors will produce specific outcomes; efficacy expectations are a person's belief that

he or she is able to carry out the behaviors required to attain certain outcomes. Thus, an

individual's actions are motivated by the confidence that certain behavior will bring

about outcomes and the confidence in one's ability to perform the behavior (Soodak &

Podell, 1996).

Evidently, the two theories are closely related. For instance, scholars have

associated the two Rand study items to Bandura's outcome expectations and efficacy

expectations. The first item seems to capture outcome expectations in Bandura's

framework, with its focus on the role of demographic and environmental factors that can

negatively affect students' school achievement. The second item seems to correspond to

efficacy expectations in Bandura's theory, as it focuses on individual teacher's

confidence in his/her personal skills, training, and experiences to surmount external

obstacles in order to improve student achievement (Soodak & Podell, 1996). These two

dimensions have also been referred to as general teaching efficacy (GTE) and personal

teaching efficacy (PTE), but the co-existence of two theoretical frameworks has

contributed to confusion about the nature of teacher efficacy construct and to

development of multiple measures for capturing the construct.

For instance, several measures have been developed based on the Locus of

Control theory. First, *Responsibility for Student Achievement* is a 30-item questionnaire

designed to assess how much responsibility the teacher assumed for student outcomes in general, as well as for student success and student failure (Guskey, 1981). Another is the *Teacher Locus of Control,* which is a 28-item questionnaire that asks respondents to choose between two explanations for scenarios describing student success or failure, one explanation which attributed the success internally to the teacher, and the other explanation which attributed the outcome to something outside the teacher (Rose & Medway, 1981). A third, *The Webb Efficacy Scale,* is an expansion of the Rand questions that attempted to reduce social desirability in respondents' answers by using a forced-choice format, with each question having two statements matched for social desirability, requiring participants to decide whether they agree with the first or the second statement (Ashton, Olejnick, Crocker, & McAuliffe, 1982, as cited in Tschannen-Moran & Hoy, 2001).

In addition, there have been several measures based on Social Cognitive theory. First is *Gibson and Dembo's Teacher Efficacy Scale,* which is a 30-item Likert-scale measure comprised of items that loaded onto either the teaching efficacy or the personal efficacy factor that had been identified in the Rand study, the two factors purported to correspond to the two types of expectancies (personal and general teaching efficacy) in Bandura's Social Cognitive theory (Gibson & Dembo, 1984). Second is *The Ashton Vignettes,* which is comprised of a series of vignettes describing various plausible situations that teachers may face, to which respondents reported their efficacy in handling each situation on two scales: one ranging from "extremely ineffective" to "extremely effective," and the other ranging from "much less effective than most teachers" to "much more effective than most teachers." (Ashton, Buhr, & Crocker, 1984; Ashton & Webb,

1986). In addition, *Bandura's Teacher Self-Efficacy Scale* is a 30-item questionnaire with 7 subscales focused on efficacy regarding specific tasks (e.g., influencing decision making, influencing school resources, enlisting parental involvement), since teacher efficacy level was found to be dependent on the given task or subject matter. The responses were coded on a 9-point scale, anchored with "nothing, very little, some influence, quite a bit, and a great deal." (Bandura, 1997).

These instruments represent various attempts to reliably identify and measure the latent factors that constitute teachers' efficacy. They also suggest the challenges involved in quantifying dispositions that have the potential to manifest themselves in varying ways. The factor structures of teacher efficacy that have been proposed in the literature include *Personal Teaching Efficacy and General Teaching Efficacy*, factors emerging from Gibson and Dembo's *Teacher Efficacy Scale*, the most widely used instrument in existing studies of teacher efficacy. The two factors in this model of teacher efficacy correspond to Bandura's conceptualization of outcome expectations and efficacy expectations. *Teaching Efficacy, Personal Efficacy for Positive Outcomes, and Personal Efficacy for Negative Outcomes* comprise a structure that differentiates teachers' *ability* to overcome outside influences from their *beliefs* about the outcomes of their behaviors, which is further differentiated into beliefs about positive versus negative outcomes (Woolfolk & Hoy, 1990). An alternative conceptualization is *Internal Locus and External Locus of Control*, which constitute a structure that identifies positive/internal locus of control and negative/external locus of control. In this model, the distinction made is related to whether individual teachers and teachers in general do or do not have an influence on student learning and achievement (Guskey & Passaro, 1994).

In addition, *Personal Efficacy, Outcome Efficacy, and Teaching Efficacy* constitute structures resulting from Soodak and Podell's (1996) attempt to identify additional dimensions. In this model, Teaching Efficacy corresponds to General Teaching Efficacy, the belief that teaching can surmount the effects of external influences; Personal Efficacy entails a teacher's belief in his or her teaching skills; and Outcome Efficacy refers to the teacher's belief that desirable student outcomes will follow when his or her skills are implemented. *Personal Teaching Efficacy, Classroom Management Efficacy, and Teaching Efficacy* comprise another interpretation of the factor structure proposed by Emmer and Hickman (1991), who like Gibson and Dembo (1984), thought of the construct as comprised of outcome (GTE) and efficacy (PTE) expectations, but believed that an additional dimension (discipline efficacy, i.e. ability to attain order and cooperation in the classroom) is reflected in PTE.

Evidently, the factor structure of teacher efficacy is yet to be established. While there is consensus that teacher efficacy is a complex, multi-faceted construct, the conceptualizations of the construct dimensions differ depending on the task, subject area, and other characteristics of teachers involved in a study. Thus, examinations of teachers' belief systems require consideration of the factors that been associated with the development of and changes in individual teacher efficacy.

Caring and Social Justice

In order for teachers to have high levels of general or personal teaching efficacy, they must possess not only strong content area knowledge and pedagogical skills, but also the knowledge of their students as individuals, referred to as *relational knowing* (Webb &

Blond, 1995). Developing a relationship with a student entails caring for the individual, knowing how to interact and communicate with the student, and knowing how to respond to a student's needs (Noddings, 1992). Caring has been shown to be critical to teacher's knowledge, and it is more than showing warmth and establishing good relationships with students (Weinstein, 1998). In broader terms, caring implies moral and social responsibility (Hargreaves & Tucker, 1991). For teachers, this means enacting student-centered instruction and implementing curriculum that is engaging and designed to further students' interest in learning (Weinstein, 1998). To implement a curriculum that is meaningful and motivating for students, teachers first need to know the students by establishing interpersonal relationships, which provide opportunities to gain insight into students' individual interests, learning styles, familial/cultural background, and life experiences.

Some scholars assert that caring is the element that characterizes teachers with strong sense of efficacy and enables them to sustain high levels of performance (Agne, 1992; Collier, 2005; Woolfolk & Hoy, 1990). Caring is thought to influence teacher beliefs, which in turn, influence teacher behaviors. A caring teacher is committed to students and accepts responsibility for student performance, whether it involves success or failure. A caring teacher does not attach failure to the student but tries to find a more effective way to help the student learn (Noblit, Rogers, & McCadden, 1995). The influence of caring motivates teachers to continually develop and improve their skills to better meet their students' needs. In addition, caring is the basis of the relationship developed between the teacher and a student, and the connection provides numerous opportunities for teaching and learning (Noblit et al, 1995). Furthermore, teachers' caring

behaviors can encourage similar behaviors in students, who, having experienced the

benefits of caring relationships with the teacher, can develop similar relationships with

their peers, thereby creating a caring community in a classroom (Agne, 1992). In sum,

caring teachers take responsibility for the well being of their students. Their actions are

performed in the best interest of their students, and caring thus is an essential factor

contributing to teachers' efficacy beliefs (Noblit et al, 1995).

Development of Teacher Efficacy

Prospective teachers need opportunities to enact teaching tasks in authentic contexts in

order to develop a sense of efficacy in given tasks. Mastery experiences are the most

powerful source of efficacy, as these experiences can raise or lower expectations about

one's future performance (Bandura, 1997). Pre-service teachers can also derive efficacy

by observing others' successful completion of a task, especially when the observer

identifies with the model and the model is credible and experienced (Bandura, 1997). In

addition, verbal or social persuasion such as encouragement from more experienced

colleagues or enthusiasm of students in class can constitute a powerful source of efficacy

(Mulholland & Wallace, 2001). The physiological or emotional states (e.g., tension, fear,

anxiety, and excitement) experienced by individuals when carrying out specific teaching

tasks may also contribute to their efficacy. An individual may interpret feelings of tension

as fear that the he or she will experience failure in taking a specific course of action.

Alternatively, the feelings of tension may be excitement for an upcoming class, as he or

she is confident that the class will be successful (Hoy & Spero, 2005). Given the impact

that physiological or emotional states can have on self-efficacy, it seems important,

especially for pre-service teachers, to have a supervisor, mentor, or a colleague who can reassure them of their capabilities to apply the effort and effective learning strategies needed for success in the teaching profession (Pajares, 1996).

Changes in Efficacy Beliefs

Prospective and Student Teachers

Research has shown that teacher efficacy beliefs are most malleable for prospective teachers and somewhat resistant to change once established, as is the case for more experienced teachers. Studies have also shown that in general, personal teaching efficacy increases during teacher preparation program and during student teaching experience (Hoy & Woolfolk, 1990; Wenner, 2001). It may be that pre-service teachers become more hopeful and confident in their teaching skills as they acquire in-depth knowledge through coursework. Likewise, student teachers may feel more prepared to enter the profession as they observe experienced teachers and have the opportunity to master teaching tasks. However, a few studies have found no change or even a decline in efficacy beliefs, with increased lengths of time in teacher education programs (Lin & Gorell, 2001; Romi & Daniel, 1999, as cited in Hoy & Spero, 2005). Thus, the level of teacher preparation program and the length of time individuals have been enrolled in the program are likely to have an impact on their efficacy beliefs. Further, since mastery experiences are a critical source of self-efficacy, the length and quality of student teaching experiences are also likely to influence individuals' teaching efficacy beliefs.

Novice Teachers

The first few years of teaching can be challenging for new teachers as they suddenly face all the responsibilities and roles expected from experienced teachers. Some scholars have noted that novice teachers can suffer from their shattered dreams of being able to perform all teaching tasks flawlessly (Friedman, 2000; Weinstein, 1988). In addition, burnout in teaching has been associated with the distance between one's expected and the actual performance levels (Friedman, 2000). Although the number of studies on novice teachers' efficacy beliefs is small in comparison to examinations of pre-service teachers' efficacy beliefs, the few existing studies have indicated that efficacy beliefs of first-year teachers are related to stress, commitment to the profession, and satisfaction with professional support and preparation (Burley, Hall, Villene, & Brockmeier, 1991; Hall, Burley, Villene, & Brockmeier, 1992). The efficacy beliefs of novice teachers represent an area to be examined more closely, as efficacy beliefs are shaped early, and determining the factors that enhance or weaken efficacy in the early years of teaching would be useful for developing interventions (Hoy & Spero, 2005).

Summary

Research has documented the significant impact that teacher efficacy can have on student learning and achievement. In order to better understand the nature of this important construct, various instruments and factor structures have been proposed and examined in empirical studies. While most researchers have found at least two separate dimensions in teacher efficacy (Personal Teaching Efficacy and General Teaching Efficacy), the exact nature of these dimensions seem yet unclear and context-dependent.

In addition, there are various factors, such as the concept of *caring* or *social justice*, which has considerable influence in shaping teacher efficacy. Teachers can derive efficacy from their knowledge of content area and pedagogical skills, but a competent teacher also has knowledge of individual students developed through caring relationships, commitment to student outcomes, and adaptations made in efforts to better reach a student. The development of efficacy beliefs can occur through multiple sources, and these beliefs may change over time.

The two factors discussed in this review, *teaching efficacy* and *caring* are the two dispositions or beliefs that NYU teacher education programs strive to develop in its students, and the Educational Beliefs Questionnaire is an instrument aimed at measuring the developing dispositions of pre-service and beginning teachers. The following section presents the development, pilot testing, and validation of the EBQ. We then examine the development of pre-service teachers' efficacy beliefs in relation to other factors that have been identified in the literature as having influence on these beliefs. We also examine the development of these participants' teaching efficacy beliefs as they engage in student teaching and experience their first years in the profession.

METHOD

The EBQ, containing 40-items, was developed in spring 2004 by the staff of Center for Research on Teaching and Learning and the faculty of the Department of T & L at NYU. A field test of the questionnaire was then conducted with 320 undergraduate and graduate students enrolled in the Department's teacher preparation programs. The data collected through this field test were factor analyzed using SPSS to determine

whether the response patterns supported the hypothesized factor structure. Through first and second order factor analyses, we found that 2 factors explained 76% of the variance: 1) beliefs in efficacy of teaching, and 2) caring, equity and social justice for promoting the learning of all students. Fourteen items did not load onto either factor and were therefore deleted, resulting in a revised Questionnaire consisting of 26 items. Several t-tests were conducted with data on these 26 items to examine differences in beliefs of teaching efficacy and caring between students in earlier or later stages of their program, and between students pursuing undergraduate versus graduate degrees.

The 26-item EBQ was again administered to a total of 518 undergraduate and graduate students in the Department of T & L in fall of 2004 and spring of 2005. Among them, 241 were undergraduate students and 272 were graduate students. A confirmatory factor analysis was performed to cross-validate the factor structure for the revised instrument. Then, reliability analysis was conducted to estimate the internal consistency reliability of the two factors. We then used ANOVA to compare the mean response scores of high, medium, and low credit undergraduate and graduate students. Post-hoc analyses were also employed to determine which two among the high, medium and low credit students showed significant mean difference.

The validation and reliability analyses of the EBQ allowed us to refine the instrument into a 23-item questionnaire. This questionnaire was administered to a total of 1089 undergraduate and graduate students in the Department of T & L in fall 2005 and spring 2006. Some of these respondents had completed their coursework and were in their student teaching year, while others had recently entered their teacher preparation programs and were in their course work stage. We are currently engaged in analyzing the

newly collected data to follow the development of educational beliefs in student teachers

from NYU teacher preparation programs. In addition to examining associations between

responses and length of time in the program or degree level of participants, we will

conduct analyses (e.g., repeated measures) to compare changes in participants' beliefs in

teaching efficacy and caring over time. We will also investigate whether there are

differences in educational beliefs between participants who have had student teaching

experience and those who have not. In addition, in spring 2008, EBQ's will be sent to a

sample of 100 graduates from the class of 2006 who have taken the EBQ during pre-

service training and who are participating in a CRTL follow-up study on NYU graduates

who are teaching in the New York City public schools. Repeated measures ANOVAs

will be applied to these data to assess changes in EBQ scores from pre-service to

induction.

RESULTS

This paper reports the results of the first two phases of the study of the EBQ. The

second phase, which explores the trends in EBQ scores from pre-service through

induction and the interactions between these trends and the characteristics of the schools

and the beginning teaching experiences of the graduates, is currently underway and will

be reported in a subsequent paper.

Pilot Test and Validation

Using field test data on the 26 items included in the revised instrument, t-tests

were conducted to compare mean responses of low- and high-credit students on the two

EBQ factors. The results indicated that undergraduate students significantly developed

their beliefs in teaching efficacy and caring as they progressed through their courses and field work (Teaching efficacy: t = -4.32, df = 115, p = .001; Caring: t = -3.98, df = 115, p = .001). Graduate students, however, did not experience significant changes in their beliefs (Teaching efficacy: t = -1.84, df = 100, p = .07; Caring: t = -1.20, df = 100, p = .24). These results suggested that students who are more advanced in their studies have stronger commitment to the teaching beliefs of the program than those who are new to the program and therefore show little change during their graduate studies.

The data collected from students in fall 2004 and spring 2005 were used to perform statistical analyses evaluating the validity and reliability of the revised EBQ instrument. A confirmatory factor analysis, using a principal components factor analysis, indicated that most of the items replicated loadings from the factor analysis of the pilot data. However, one of the items did not load significantly on either factor and another was thought to be confusing by respondents; both items were therefore deleted. A second factor analysis was then conducted for the remaining 24 items. The results indicated that teaching efficacy and caring explained 29.5 percent of the variance in the data. Further inspection of the component matrix of item loadings on the two factors revealed that among all 16 items that loaded onto teaching efficacy, six items loaded at or above .50, two items loaded below .40, and eight items loaded between .40 and .50. Among eight items that loaded onto factor of caring, three items loaded between .45 and .53. The remaining five items loaded between .25 and .40. Then, internal consistency analyses were performed to assess the reliability of the two factors extracted from the confirmatory factor analysis. Cronbach's alpha coefficients were calculated for the 16 items retained for Factor I, Teaching Efficacy, and the 8 items retained for Factor II,

Caring. The coefficient for Factor I was large, alpha = .79, while that for Factor II was moderate, alpha = .63. These data confirmed the soundness of the construct validity of the revised EBQ instrument. In future EBQ evaluation, the 24-item instrument will be used for administration.

Associations between EBQ responses, length of participation in program, and degree level

Data from all respondents were disaggregated by degree and number of credits completed, resulting in six subgroups: Low-Credit BS, Medium-Credit BS, High-Credit BS, Low-Credit MA, Medium-Credit MA, and High-Credit MA. Descriptive analyses revealed that for BS students, high-credit students had the highest mean scores for both Factor I (4.72) and II (5.10), followed by medium-credit students (I: 4.49, II: 4.78), and low-credit students (I: 4.15, II: 4.39). Among MA students, however, low-credit students had the highest mean scores on both: Factor I (4.71) and Factor II (4.85). Mean scores for medium-credit MA students were: I: 4.61, II: 4.82, while mean scores for high-credit MA students were: I: 4.68, II: 4.81. Descriptive analyses were also carried out to explore differences in students' responses by program.

Next, ANOVAs were performed to find out whether significant differences existed among the responses from low-, medium-, and high-credit groups within each degree program. The three groups in undergraduate programs differed significantly in their responses for both factors (I: F = 9.03, df = 2, p = .000; II: F = 20.46, df = 2, p = .000). However, the three groups in the graduate programs did not have significantly different responses (I: F = 0.51, df = 2, p = .602; II: F = 0.20, df = 2, p = .817). Post-hoc

Scheffe analysis was carried out for the undergraduate students to determine which two of the three groups differed significantly in their responses. The results indicated that for Factor 1, Teaching Efficacy, responses from the medium- and high- credit students significantly differed from those of the low-credit students. Responses of the medium-credit group, however, were not statistically different from those of the high-credit group. For Factor 2, Caring, all three groups differed significantly in their responses.

The findings for the undergraduate students confirmed our hypothesis that the longer students participate in our teacher preparation programs, the more deeply they develop their teaching beliefs in teaching efficacy and caring. As for graduate students, we did not find significant differences in the responses of low, medium and high credit groups. One explanation of this could be that graduate students entered the programs with established teaching beliefs, and given the shorter period of time they stay in the programs, it is difficult to detect much change in their beliefs.

DISCUSSION / CONCLUSION

By developing and validating an instrument that measures pre-service teachers' educational beliefs and examining the educational beliefs of participants in various stages of their programs, the current study offers many teacher education programs a means of assessing the effectiveness of their programs. Teacher education programs at NYU are dedicated to creating reflective practitioners who institute research-based teaching practices, strive to create equitable classroom environments, and respond to the social contexts beyond the classroom to foster positive development of both students and teachers. The EBQ serves as a self-assessment tool for the NYU teacher preparation

programs, as it measures pre-service teachers' beliefs as they progress through the NYU

teacher preparation programs and thereby indicates the impact of the programs in

developing effective, caring teachers. Given the increased focus on student achievement

and the need for high-quality teachers, the development of EBQ is timely, particularly as

it is a promising tool in identifying the areas in which pre-service teachers would benefit

from additional training.

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