Preliminary Investigation of the Sources of Self-Efficacy Among Teachers of Students with Autism

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Abstract

Teacher self-efficacy refers to the beliefs teachers hold regarding their capability to bring about desired instructional outcomes and may be helpful for understanding and addressing critical issues such as teacher attrition and teacher use of research-supported practices. Educating students with autism likely presents teachers with some of the most significant instructional challenges. The self-efficacy of 35 special education teachers of students with autism between the ages of 3 to 9 years was evaluated. Teachers completed rating scales that represented self-efficacy and aspects of the following 3 of Bandura's 4 sources of self-efficacy: (1) sense of mastery, (2) social persuasions, and (3) physiological/affective states. Significant associations were observed between physiological/affective states and self-efficacy, but no associations were observed for the other sources.

Keywords

Teacher self-efficacy, the beliefs teachers hold regarding their capability to bring about desired instructional outcomes, is a potentially important construct for understanding teacher attrition and retention as well as for conducting translational research in educational settings (McLeskey, Tyler, & Flippen, 2004; Singh & Billingsley, 1996). Self-efficacy is a powerful predictor of motivation and behavior across diverse domains of functioning (Bandura, 1997). When people believe they can bring about desired outcomes by their actions, they are likely to be more motivated and to apply effort and persevere when confronted with obstacles and adverse situations (Bandura, 1986; Soto & Goetz, 1998).

Educating students with autism presents teachers with significant instructional challenges (Jennett, Harris, & Mesibov, 2003; Scheuermann, Webber, Boutot, & Goodwin, 2003). The core impairments associated with students with autism (i.e., impaired communication, social interaction and understanding, and restricted and narrow interests; American Psychiatric Association, 2000) influence all areas of learning (Rogers & Vismara, 2008; Wilder, Dyches, Obiakor, & Algozzine, 2005). The responsibility for teaching students with autism may increase teachers' vulnerability to stress and burnout, factors associated with teacher attrition (Billingsley, Carlson, & Klein, 2004; Boyer & Gillespie, 2000). Because attrition rates are highest for special educators compared to other groups of educators (McLeskey, Tyler, & Flippen,

2004) and there is a critical shortage and need for retaining special educators (Cook & Boe, 2007; McLeskey & Billingsley, 2008; Nichols, Bicard, Bicard, & Casey, 2008), identifying protective and risk factors associated with teacher retention is necessary (Billingsley et al., 2004; Singh & Billingsley, 1996). Teachers who are confident in their capabilities not only report lower stress but also remain in the teaching profession longer and report greater commitment than do teachers who doubt their capabilities (Schwarzer & Hallum, 2008; Ware & Kitsantas, 2007). In other words, teacher self-efficacy can serve as a protective factor for burnout that has traditionally plagued the teaching profession, particularly in the field of special education.

There has been an increased research focus on the influence of teachers' efficacy beliefs on general classroom teaching practices. For example, teacher self-efficacy has been associated with quality of instruction and the use of innovative teaching methods (Tschannen-Moran & Woolfolk-Hoy, 2001; Wolters & Daugherty, 2007). Teachers with increased

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self-efficacy also display the following effective methods of coping with stress: use more effective instructional strategies; manage classroom behavior more effectively; exert more effort in organizing, planning, and delivering their lessons; set higher goals for instruction; and engage students to a greater extent in learning compared to teachers with low self-efficacy (Allinder, 1994; Chwalitsz, Altameyer, & Russel, 1992; Ross, 1998; Tschannen-Moran & Woolfolk-Hoy, 2001). In addition, teachers who display more confidence in their skills are typically more receptive to the consultation and application of novel instructional practices (Morrison, Wakefield, Walker, & Solberg, 1994) compared to teachers with low self-efficacy, who direct more frequent criticism toward students making mistakes and are more susceptible to becoming frustrated when classroom routines are not followed (Gibson & Dembo, 1984; Woolfolk, Rosoff, & Hoy, 1990). Despite this growing body of research, it is unclear how well these findings generalize to special education teachers or teachers of specific student populations (Wolters & Daugherty, 2007).

Because teacher self-efficacy has been shown to be related to many positive classroom outcomes, researchers have turned toward investigating the origins of teachers' efficacy beliefs for important insights about how to foster self-efficacy during teacher training (Henson, 2002; Labone, 2004; Gaskill & Woolfolk-Hoy, 2002). Understanding the potential sources of self-efficacy for teachers of students with disabilities, such as autism, can help identify factors to target in professional development activities and ongoing teacher support initiatives. Bandura (1997) proposed the following four sources of self-efficacy: (1) mastery experience, (2) vicarious experience, (3) social persuasions, and (4) physiological and affective states. Each source is discussed briefly below.

The first source, mastery experience, refers to the interpretations individuals make of their past performances. Bandura hypothesized that interpretations of past performance serve as a robust indicator of self-efficacy, a finding that has been confirmed in studies of the sources of students' self-efficacy (Usher & Pajares, 2008). For example, a teacher who has been successful in helping students progress will likely make a favorable interpretation of his or her effort, thus increasing self-efficacy. On the other hand, failures in the classroom can lower a teacher's beliefs in what she or he can do can do.

The second source, vicarious experience, refers to the experience gained by observing the successes and mistakes of others. Teachers may look to the performances of their colleagues to evaluate their relative capabilities. Competent models offer better ways of handling teaching situations. From preliminary studies, researchers suggest that beginning teachers who have higher levels of induction support compared to those with lower levels of support are more likely to view their jobs as manageable, report that they can teach the most difficult students, and indicate that they are successful in providing education to students needing special education services (Billingsley et al., 2004).

The third source, social persuasions, refers to the persuasive messages individuals receive from others. Teachers receive evaluative feedback from students, colleagues, administrators, and parents, which likely influences how capable they feel in their jobs. Positive messages typically boost self-efficacy, whereas criticisms tend to be undermining. Much of the influence of social messages depends on how observers construe what others tell them. This is likely why teachers who perceive more support from their principals are less stressed and more committed and satisfied with their jobs as compared to those who perceive less support (Billingsley & Cross, 1992). Similarly, researchers have shown that educators who remain in their jobs were about four times more likely to perceive their administrators as supportive and encouraging than were the teachers who left (Boe, Barkanic, & Leow, 1999).

The final source of self-efficacy, physiological and emotional states, refers to individuals' somatic and affective responses regarding their performance. Excessive stress or anxiety can convince teachers that they do not have the skills necessary to carry out his or her jobs successfully. On the other hand, those who feel energized by the teaching task likely approach their work with confidence. For example, the multiple pressures on special education teachers pose legitimate concerns for increased stress, which has been associated with burnout and teacher attrition (Billingsley et al., 2004; Boyer & Gillespie, 2000).

Understanding the influences of self-efficacy and its sources will help researchers begin to identify factors important for supporting and retaining teachers of students with complex instructional needs such as autism. A closer examination of the experiences of teachers of students with autism is essential because the numbers of students with autism served under the Individuals with Disabilities Education Act (IDEA) has exploded, with a more than a 500% increase in the last decade (Government Accountability Office, 2005), while the number of special education teachers has decreased (Cook & Boe, 2007; Nichols et al., 2008). For special education directors and principals, maintaining highly qualified special educators is a critical challenge (Thornton, Peltier, & Medina, 2007).

The purpose of the current study is to explore the relationship between three factors hypothesized to be related to self-efficacy and the efficacy beliefs reported by teachers of students with autism. First, it was hypothesized that a sense of mastery, as measured by number of years teaching, would be positively correlated with self-efficacy. Second, it was expected that social persuasions, as measured by perceived principal leadership and support, would directly correlate with self-efficacy. Third, it was expected that physiological and affective sources, as measured by self-reported levels of burnout, would be negatively associated with self-efficacy. As noted, the factors investigated were believed to act as

Table 1. Teacher Characteristics

Characteristics	n	Mean	SD
Total number of years teaching	35	10.6	7.6
Current class/caseload size	34	12.8	7.9
Number of years teaching students with autism	31	6.8	7.0
Number of students taught with autism	29	6.5	9.0

proxies of the following three sources of self-efficacy theorized by Bandura: (1) mastery experience, (2) social persuasions, and (3) physiological/affective states. We use the term "proxy" to acknowledge the exploratory nature of the study given the measures available. A measure of the sources of teaching self-efficacy has not yet been validated. In addition, because no direct measure of teachers' exposure to models was available, we did not include a proxy for vicarious experience. We provide further discussion of the implications of these decisions below.

Method

Participants

A total of 35 teachers of students with autism were recruited from one Midwestern and one Southern state as part of a larger randomized study on parent-teacher collaboration and teacher coaching outcomes. Teachers selected for the study were case managers for at least one child with autism (children's ages ranged from 3 to 9 years, $M = 6.1$, SD = 1.7). In all, 94% of the teachers were female ($n = 33$) and reported that they had formal autism training such as coursework, supervised field work, workshops, and in-services. Thirteen teachers held a bachelor's degree (37.1%) and 19 (51.4%) had a master's degree (three responses were missing). All teachers were certified, and one held an alternative certificate. A total of 34% of the teachers reported that in addition to teaching, they also had skills for assessing students with autism. Another 25% of teachers reported that they had served as a consultant or trainer to other teachers. Two of the school systems (represented by 15 teachers) were located in large cities and 14 (represented by 20 teachers) were located in small cities or in rural areas. Table 1 contains additional information regarding teacher characteristics.

The study was approved by the university's Institutional Review Board and approval to collect data was granted by the district's Director of Special Education. Administrators provided the researchers with a directory of special educators who taught students with autism. Individual faculty members were contacted by the school administrator; teachers gave permission for their name to be shared with the researchers. Once teacher consent was obtained, teachers were mailed assessment packets (including self-report measures) at the beginning of the school year.

Measures

Self-efficacy. The Teacher Interpersonal Self-Efficacy Scale (TISES; Brouwers & Tomic, 2001) is a 24-item self-report measure that taps into teachers' perceptions of their abilities to maintain classroom management, elicit support from colleagues, and elicit support from the principal. Items are measured with a 6-point response scale ranging from strongly disagree to strongly agree. Reported reliabilities using Cronbach's alpha exceed 0.90 (Brouwers & Tomic, 2001). The authors of this scale indicate that a significant benefit of using this scale, as opposed to other self-efficacy scales, is its attempt to specify different activities within teachers' interpersonal domain of functioning and to assess teachers' efficacy beliefs to execute them. For this study, the separate subscales of the TISES were used. Because one item appeared to be a measurement of knowledge rather than self-efficacy ("I know what rules are appropriate for my student"), it was removed from the Self-Efficacy for Classroom Management subscale. Cronbach alphas for each of the subscales were adequate and ranged from 0.83 to 0.96 in the current study.

Sources of self-efficacy. Although Kieffer and Henson (2000) reported the creation of a preliminary measure of sources of teaching self-efficacy, the psychometric challenges with the instrument have yet to be resolved. Consequently, we opted to use pre-established measures to assess variables that closely resemble the sources theorized by Bandura (1997).

Teachers completed a background form that asked them to note how many years they have been teaching. This direct experience measure, rather than a measure of perceived experience, was used to represent mastery experience. It is of course plausible that teachers with many years of experience may perceive themselves as inexperienced and vice versa. In selecting this measure, however, we reasoned that this is not probable. As noted above, no sufficient measure of vicarious experience was available, so we reserve our comments regarding this theorized source of self-efficacy to our recommendations for future research.

The Multifactor Leadership Questionnaire (MLQ; Avolio, Bass, & Jung, 1999), which assesses teachers' perceptions of support from school leaders, was used as a proxy for social persuasions. The original MLQ assessed leadership style and contains 45 items that are based on a 5-point response scale ranging from 0 = *not at all,* to 4 = *frequently, if not always.* Leadership factor subscales assess transformational, transactional, or laissez-faire styles. The latter 10 questions assess respondents' view of the leader's effectiveness and abilities along with respondents' demographic information. Six items from the MLQ-5X Short Form were identified to create a measure of the social persuasions teachers receive

Table 2. Means, Standard Deviations, and Zero-Order Correlations for Variables in the Study

	N	M	SD	I	2	3	4	5	6	7
TISES: self-efficacy for classroom management	32	4.56	0.48							
TISES: self-efficacy for obtaining colleagues' support	35	5.39	0.63	0.26						
TISES: self-efficacy for obtaining principal's support	35	5.18	0.97	0.24	0.14					
Years of teaching	35	10.66	7.59	−0.14	−0.07	0.26				
MLQ: support from selected administrator	24	2.82	0.75	0.28	0.11	0.08	0.23			
MBI: emotional exhaustion	35	2.10	1.06	−0.44**	−0.06	−0.03	−0.10	−0.40*		
MBI: depersonalization	33	0.61	0.69	−0.38*	0.02	0.00	−0.10	−0.15	0.47**	
MBI: personal accomplishments	34	4.99	0.80	0.43**	0.18	0.18	−0.01	0.19	−0.34*	−0.35*

Note: TISES = Teacher Interpersonal Self-Efficacy Scale; MLQ = Multifactor Leadership Questionnaire (only a subset of items was used here);
MBI = Maslach Burnout Inventory.
*$p < .05$.
**$p < .01$.

from their direct administrator thought to represent this construct (e.g., "My supervisor . . . gets me to look at problems from many different angles; helps me to develop my strengths; expresses satisfaction when I meet expectations; gets me to do more than I expected to do; heightens my desire to succeed; increases my willingness to try harder"). Cronbach's alpha for these six items was 0.88.

The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1997), which was used to assess physiological and affective states, is comprised of 22 self-report items that use a 7-point, anchored scale (ranging from 0 = *never,* to 6 = *every day*). The MBI is designed to assess the following three components of burnout: (1) emotional exhaustion (being overextended emotionally and physically), (2) depersonalization (maladaptive/cynical attitudes and/or feelings about one's recipients), and (3) personal accomplishments (evaluation of personal performance). Past estimates of internal consistency have ranged from 0.72 to 0.89 (Egyed & Short, 2006). Moreover, scores from the MBI have been found to be relatively stable from 3 months up to 1 year (Maslach et al., 1997). Estimates of Cronbach's alpha for each of the three subscales ranged from 0.73 to 0.89 in the current study.

Results

Table 2 shows the intercorrelation matrix of the three sources of self-efficacy measured (i.e., mastery experience, social persuasions, and physiological/affective states), and the three subscales of the TISES (i.e., self-efficacy for classroom management, self-efficacy for obtaining colleagues' support, and self-efficacy for obtaining principal's support).

Hypothesis 1: Sense of mastery (indicated by number of years teaching) would be positively correlated with self-efficacy. Results indicate that the number of years of teaching was not associated with any of the subscales representing self-efficacy.

Hypothesis 2: Social persuasions (measured by teacher report of principal leadership and support) would directly correlate with self-efficacy. The results show that social persuasions, as measured by MLQ, were not associated with any of the subscales of self-efficacy.

Hypothesis 3: Physiological/affective states (as measured by teacher burnout) would be negatively associated with self-efficacy. Examination of the correlations supported this hypothesis and showed a significant correlation between self-efficacy for classroom management and all three subscales of the MBI representing teacher burnout (i.e., personal accomplishments, emotional exhaustion, and depersonalization). The other two subscales of the TISES, self-efficacy for obtaining principal support and colleague support, were not associated with any of the physiological measures represented by the MBI.

Although our primary research questions did not include analysis of the intercorrelations between the other measures, it is important to note and comment on these findings of the significant intercorrelations of the subscales of the MBI with other measures as well as with the other MBI subscales. Teacher report of emotional exhaustion correlated negatively with teacher report of administrator support as measured by the MLQ. Consistent with the conceptual understanding of the MBI subscales, there was a positive correlation between depersonalization and emotional exhaustion, and negative correlations between personal accomplishments and both emotional exhaustion and depersonalization.

Discussion

Self-efficacy is believed to be a critical factor for understanding teacher motivation, behavior, retention, and attrition.

In this study, we investigated concurrent correlations between self-efficacy and the following three sources of self-efficacy for teachers of students with autism: (1) mastery experience, (2) social persuasions, and (3) physiological and affective states. Identifying ways to foster the self-efficacy of teachers of students who present with significant and challenging instructional needs can provide information to identify and create ways to increase teacher confidence and support, decrease teacher burnout, and ultimately enhance teacher retention.

The first hypothesis examined whether mastery experience, as measured by number of years of teaching, correlated with teacher self-efficacy. Surprisingly, no support was found for the association between years of teacher experience and self-efficacy. This finding suggests that, when judging their teaching capabilities, teachers of students with autism do not necessarily rely on the presence or amount of prior experience. We see several plausible explanations. The first is that perhaps the heterogeneity in symptom presentation of students with autism creates challenges in generalizing information learned from teaching one child with autism to another child. Although children with autism share core impairments in social and communication skill development, the manifestation of those impairments is quite variable. Some children with autism may initiate social interactions with others, others may be passive and respond to the initiations of others, and still others may be aloof and not initiate with or respond to others. Within the communication domain, some children may be completely nonverbal, while others may be able to speak spontaneously in full sentences. For teachers, the heterogeneity in behavioral presentation requires an individualized approach to the development of teaching plans (Ruble & Dalrymple, 2002), and determining how best to address the full range of needs within the wide spectrum represented by autism is a formidable challenge teachers face.

Another explanation concerns the widening gap between research and practice. The epidemic rise in the number of children with autism spectrum disorders reported over the last 10 years and the reports of positive outcomes from research studies on early intervention in autism have led to increased attention to research. However, translational and services research has lagged behind. Educational shortcomings have been reported and are thought to be due in part to inadequate teacher preparation (Stahmer, Collings, & Palinkas, 2005), particularly in meeting the focused needs of this unique group of learners (National Research Council, 2001; Scheuermann et al., 2003). Recently, researchers have demonstrated that many providers lack an adequate understanding of evidence-based practice (Stahmer et al., 2005), and the strategies most often used by teachers lack scientific evidence (Hess, Morrier, Heflin, & Ivey, 2008).

The lack of an association between prior mastery experiences as measured by years of teaching and self-efficacy also calls into question the effectiveness of teacher training in autism. Researchers have found that pre-service teachers' efficacy beliefs are enhanced by university courses that provide student teachers with hands-on activities, experience writing lesson plans, or opportunities to teach brief lessons (Cantrell, Young, & Moore, 2003; Watters & Ginns, 2000). Researchers also suggest that training in an autism-specific intervention facilitates pedagogical self-efficacy (Jennett et al., 2003). That is, teachers of students with autism may need access to autism-specific instructional methods that will facilitate the adoption of a teaching philosophy, which in turn promotes a higher sense of self-efficacy. However, no controlled research has examined this question.

The discussion of our first hypothesis would be incomplete without an acknowledgement of the limitations inherent in the measures used. We used an objective measure of years of teaching experience that does not capture the uneven preparation teachers receive, the unique experiences they have had, or the contextual variations in their workplace and student body. We are hopeful that a more contextualized measure of mastery experience that assesses how teachers construe their past teaching performances, particularly those specific to working with students with autism, will render a clearer picture of how this source is related to instructional self-efficacy.

The second hypothesis was that social persuasions, as measured by teachers' perceptions of their principals' leadership, would directly correlate with self-efficacy. There was no association between social persuasions and any of the self-efficacy subscales. However, these null results should be interpreted cautiously. The sample size for the analyses was limited because of missing data ($n = 24$), leading to very low power. For example, despite having an effective power of only 0.38, the correlation between perceptions of administrator support and self-efficacy for classroom management was nearly significant ($p = .09$). Thus, a clear conclusion concerning the lack of association is not possible. A further issue clouding the interpretation of the results is that, in contrast to their counterparts in general education, special education teachers may not rely on support from their school principal but on support from individuals who are more directly involved in supporting their teaching (e.g., autism specialist) when formulating their beliefs about what they can accomplish in their classroom. Persuasive messages are most informative when the persuader is intimately familiar with the task at hand so that feedback is diagnostic of a teacher's strengths and weaknesses. Moreover, Bandura (1997, p. 105) posited that "the impact of persuasory opinions on efficacy beliefs is apt to be only as strong as the recipient's confidence in the person who issues them." Unless teachers trust their school administrators and believe they possess a high degree of expertise in teaching students with special needs, support in a more general sense may be only marginally related to teachers' efficacy judgments. Allowing teachers to evaluate the persuasive messages they receive from

others regarding specific students might offer a more sensitive measure of this important source of self-efficacy than a general measure of leadership as represented by the MLQ.

We found support for our final hypothesis, that physiological and affective states, as examined by stress and burnout, would be associated with self-efficacy. Teachers who reported more confidence in their classroom management abilities reported lower levels of burnout. Because of the correlational nature of this study, we do not wish to speculate about directionality. Whether the teachers in our study with poor self-efficacy for classroom management experienced more burnout because of their weak management skills or felt doubtful of their management skills as a result of burnout is unknown. Indeed, social cognitive theorists have posited that such relationships are reciprocal (Bandura, 1986; Pajares & Usher, 2007). However, our findings are consistent with those of researchers who have demonstrated both direct and indirect influences of self-efficacy on teacher burnout and stress (Schwarzer & Hallum, 2008; Skaalvik & Skaalvik, 2007).

Interestingly, the correlation with burnout was significant for only one of the three self-efficacy subscales (i.e., classroom management). The correlations between burnout and self-efficacy for gaining support from both colleagues and administrators were small and non-significant. These findings suggest that burnout is most closely related to what happens on the ground in the classroom and by teachers' beliefs in their ability to handle it. Nor does burnout appear to have a direct relationship to teachers' perceptions of their ability to gain support from administrators or others. Although support from others may buffer the degree of stress or burnout experienced, the key stressor is what occurs within the classroom. Our findings suggest an indirect effect of support on burnout, which is consistent with the stress-social support-buffering hypothesis (Cohen, 1988).

The significant and negative correlations observed between administrator support and emotional exhaustion, and between personal accomplishments and emotional exhaustion and depersonalization, suggest the important role that administrators may play in teacher burnout. The findings also suggest that personal accomplishments may offset the consequences of other factors related to burnout. As potential protective factors, administrator support and personal accomplishment may be areas to target for intervention studies designed to examine ways to address teacher attrition and retention.

Limitations and Directions for Future Research

One limitation of this study is the measure used for evaluating self-efficacy. Self-efficacy is a task-specific judgment, and the tasks reflected in the measure used may not adequately represent those instructional tasks most important for teachers of students with autism. Utilizing a more sensitive self-efficacy measure that is more carefully focused on the skills

and tasks required by teachers of students with autism might evoke results that differ from a measure that assesses self-efficacy more generally. Similarly, using a sources-of-self-efficacy measure specifically designed for use with these teachers would help to accurately reflect and better assess the four sources hypothesized by Bandura (1997). Such a measure would permit us to assess teachers' perceptions of vicarious influences, which could potentially be an important source of self-efficacy for teachers of students with autism. Including stronger measures of the sources could also help researchers determine the relative potency of the four informational sources on the efficacy beliefs of teachers of students with autism. Another limitation is that these findings are based on concurrent correlations. Future research is needed to clarify the relationships between these variables. A final limitation is the relatively small sample size, increasing the potential for Type II error. Weak to modest correlations in the current study may have been significant with a larger sample. Thus, as noted earlier, the fact that non-significant results were obtained in the current study should not be taken as definitive evidence that the relationship between variables is zero or absent.

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