

The differential antecedents of self-efficacy beliefs of novice and experienced teachers

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Abstract

Among the sources of teachers' self-efficacy beliefs, mastery experiences are postulated to be the most potent. Thus it seems likely that other sources of self-efficacy would play a larger role early in learning when fewer mastery experiences are available. Among the 255 novice and careers teachers who participated in this study, contextual factors such as the teaching resources and interpersonal support available were found to be much more salient in the self-efficacy beliefs of novice teachers. Among experienced teachers, for whom an abundance of mastery experiences were available, contextual factors played far less important a role in their self-efficacy beliefs.

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1. Introduction

Compelling evidence has been accumulating over the past three decades revealing the relationship of teachers' beliefs about their capability to impact students' motivation and achievement to important processes and outcomes in school. Teachers' self-efficacy has been related to their behavior in the classroom and to student outcomes such as students' self-efficacy beliefs, motivation, and achievement (Anderson, Greene, & Loewen, 1988; Ashton & Webb, 1986; Midgley, Feldlaufer, & Eccles, 1989; Ross, 1992). A growing body of empirical evidence

supports Bandura's (1977) theory that teachers' self-efficacy beliefs would be related to the effort teachers invest in teaching, the goals they set, their persistence when things do not go smoothly and their resilience in the face of setbacks (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Less is known, however, about the sources of teachers' self-efficacy beliefs (Labone, 2004). Social cognitive theory provides some general guidance about possible sources of teachers' sense of efficacy. Bandura (1986, 1997) proposed four sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological arousal, with mastery experiences postulated as the most potent source. The current study examined two of these sources of teachers' self-efficacy: verbal persuasion in the form of interpersonal support from administrators,

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colleagues, parents, and the community, and mastery experiences, defined as a sense of satisfaction with one's past teaching successes. Because novice teachers have fewer mastery experiences, it was expected that other sources of self-efficacy would play a more prominent role in the formation of their self-efficacy beliefs.

There is also a need for greater understanding about the kinds of context variables linked to a higher self-efficacy (Labone, 2004). Social cognitive theory suggests that personal factors (including self-efficacy beliefs) and behaviors interact with the environment to influence each other through a process of reciprocal determinism. Thus, it should be instructive to examine reciprocal relationships between school contexts and teacher self-efficacy. Tschannen-Moran and her colleagues (1998) included contextual variables in their model of teachers' self-efficacy, as part of their definition of teachers' analysis of the teaching task. They proposed that an assessment of personal competence in light of the perceived demands for a particular teaching task resulted in self-efficacy judgments. Thus, this study examined key factors that might contribute to an analysis of the teaching task, including school level and setting, teachers' assessment of the availability of teaching resources, and the quality of the school facilities. These may be elements that teachers consider in their assessment of the difficulty of the teaching task in determining how successful they expect to be at that task.

2. Teacher's self-efficacy and task context

Bandura (1977) introduced the concept of self-efficacy beliefs as an assessment of one's capabilities to attain a desired level of performance in a given endeavor. He proposed that belief in one's abilities was a powerful drive influencing motivation to act, the effort put forth in the endeavor, and the persistence of coping mechanisms in the face of setbacks. Self-efficacy theory, applied in the educational realm, has sparked a rich line of research into how teachers' self-efficacy beliefs are related to their actions and to the outcomes they achieve (Tschannen-Moran et al., 1998). According to social cognitive theory, teachers who do not expect to be successful with certain students are likely put forth less effort in preparation and delivery of instruction, and to give up easily at the first sign of difficulty, even if they actually know of strategies that could assist these students if applied. Self-efficacy beliefs

can therefore become self-fulfilling prophesies, validating beliefs either of capability or of incapacity.

Of the four major influences on teachers' self-efficacy beliefs (mastery experiences, verbal persuasion, vicarious experiences, and physiological arousal), the most powerful is mastery experiences, which for teachers comes from actual teaching accomplishments with students (Bandura, 1997). Efficacy beliefs are raised if a teacher perceives her or his teaching performance to be a success, which then contributes to the expectations that future performances will likely be proficient. Efficacy beliefs are lowered if a teacher perceives the performance a failure, contributing to the expectation that future performances will also fail. Verbal persuasion has to do with verbal interactions that a teacher receives about his or her performance and prospects for success from important others in the teaching context, such as administrators, colleagues, parents, and members of the community at large.

Vicarious experiences are those in which the target activity is modeled by someone else. The impact of the modeled performance on the observer's efficacy beliefs depends on the degree to which the observer identifies with the model. When a model with whom the observer closely identifies performs well, the self-efficacy of the observer is enhanced. When the model differs in ways that seem salient to the observer, for example in terms of the level of experience, training, gender, or race, then even witnessing a very competent performance may not enhance the self-efficacy beliefs of the observer. Psychological and emotional arousal also adds to a feeling of capability or incompetence. The feelings of joy or pleasure a teacher experiences from teaching a successful lesson may increase her sense of efficacy, yet high levels of stress or anxiety associated with a fear of losing control may result in lower self-efficacy beliefs.

In assessing beliefs about their teaching capability in a particular context, teachers make two related judgments: the requirements of an anticipated teaching task and an assessment of their personal teaching competence in light of those requirements (Tschannen-Moran et al., 1998). The assessment of the teaching task requirements will include the resources available; student factors such as their perceived ability, motivation, and socioeconomic status; and contextual factors such as school leadership, collegial support, and the availability of resources. Judgments of personal competence are

those a teacher makes about his or her capabilities based on an assessment of internal strengths and deficits. For example, a novice middle-school teacher may judge that her sense of humor will be an asset in working with students of that age-group, but also judge that her tendency to be disorganized will be an impediment. Instructors who judge themselves to be capable of orchestrating the complex knowledge and skills required to design instruction based on individual students' needs, taking into account the challenges of a particular teaching context, will likely exert greater effort, persistence, and resilience as a result of stronger self-efficacy beliefs.

It is important to note that self-efficacy is a motivational construct based on self-perception of competence rather than *actual* level of competence. A teacher's self-perceived level of competence may be either higher or lower than an external assessment of teaching skill. Bandura (1997) suggested that it is most fruitful when teachers slightly overestimate their actual teaching skills, as their motivation to expend effort and to persist in the face of setbacks will help them to make the most of the skills and capabilities they do possess. The standards teachers hold for what constitutes good teaching also will influence their sense of self-efficacy (Bandura, 1977; Tschannen-Moran et al., 1998). Novice teachers often enter the profession with high hopes about the kind of impact that they will be able to have on students' lives, but often encounter a painful "reality shock" when they learn that it may be more difficult than they had realized to have the hoped-for results with students (Weinstein, 1988). This may lead novice teachers to "recalibrate" the meaning of good teaching, lowering their standards in a self-protective move to avoid the painful self-assessment of failure. On the other hand, entertaining doubts about current effectiveness may motivate continued learning and growth if the teacher maintains sufficient belief in the possibility of future success (Wheatley, 2002).

Bandura (1997) proposed that self-efficacy beliefs are context-specific rather than a generalized expectancy. Consequently, teachers' self-efficacy has been examined in relation to a number of school-level variables, such as the climate and structure of the school, the leadership of the principal, and the collective efficacy of the organization. These studies, reviewed in the next section, provide some initial clues as to how context may impact the development of teachers' efficacy beliefs.

2.1. School climate and structure

A potentially important element of teachers' environments related to self-efficacy is the climate of the school. Stronger self-efficacy beliefs have been found among teachers who perceived a positive school atmosphere (Moore & Esselman, 1992) and a strong press for academic achievement among the staff in their schools (Hoy & Woolfolk, 1993). Moreover, sense of community in a school was the single greatest predictor of teachers' level of efficacy in a study using the *High School and Beyond* data (Lee, Dedick, & Smith, 1991). Receiving positive feedback on teacher performance and collaboration with other teachers were significantly associated with teachers' sense of efficacy, as were parent involvement in the school and school-wide coordination of student behavior (Rosenholtz, 1989).

In teacher interviews that explored elements of school climate and structure that might impede the cultivation of strong self-efficacy beliefs, Webb and Ashton (1987) found a number of factors that appeared to diminish teachers' sense of efficacy. These included excessive role demands, poor morale, lack of recognition, inadequate salaries, and low status. In addition, professional isolation, uncertainty, and alienation tended to weaken teachers' self-efficacy beliefs. Ashton and Webb also found that teachers working in a school with a middle-school structure and philosophy tended to have higher self-efficacy than those in a junior-high structure. The middle-school teachers had higher expectations of academic success for their students and were more satisfied with teaching, although they also reported more difficulties with collegial relations.

The degree of specificity of the context's impact on teacher's sense of efficacy was examined in two studies at the high school level. To explore whether teachers' sense of efficacy was stable across class periods, subjects, or group of students, secondary teachers were asked to respond to a single-item measure of personal teaching efficacy for each of the classes they taught. Analyses indicated significant variance within teachers across the courses and class periods taught. Teachers' levels of efficacy depended upon the subject matter and the particular group of students they worked with each period (Ross, Cousins, & Gadalla, 1996). Teachers reported lower self-efficacy for non-academic track classes as compared with academic and honors

classes (Raudenbush, Rowen, & Cheong, 1992). These studies reveal that teaching context is perceived by teachers to be more specific than the school or general population served by the school, although school-level variables also appear to influence self-efficacy beliefs.

2.2. Principal leadership

The leadership of the principal also has been linked to teachers' self-efficacy. Schools where the principal was able to inspire a common sense of purpose among teachers and where student disorder was kept to a minimum were schools in which teachers felt a greater sense of efficacy. In addition, principals who used their leadership to provide resources for teachers and to buffer them from disruptive factors but allowed teachers flexibility over classroom affairs created a context that allowed strong self-efficacy beliefs to develop. Finally, when the principal of a school modeled appropriate behavior and provided rewards contingent on performance, teachers' sense of efficacy tended to be higher (Hipp & Bredeson, 1995; Lee et al., 1991).

Teachers' participation in the decisions that affect their work lives bears on their sense of efficacy. Among teachers in an urban, Midwestern school district, the greater freedom teachers experienced in relation to decision-making that affected their own classrooms, the greater was their sense of efficacy. Teachers who perceived they had a greater influence in school-based decision making and who perceived fewer impediments to teaching had a stronger sense of efficacy (Moore & Esselman, 1992).

2.3. Collective efficacy

Collective efficacy is a belief about the capability of the group to bring about desired ends. Because of the reciprocal causation of contextual factors and self-efficacy beliefs, a history of academic failure may result in low collective efficacy among a staff of teachers, resulting in lower effort and persistence, thus creating a self-defeating and demoralizing cycle of failure. Low teacher efficacy beliefs can contribute to low student efficacy and low academic achievement, which in turn may contribute to further declines in teacher self-efficacy. Alternately, as academic achievement is improved efficacy beliefs are enhanced, which in turn further enhances student achievement regardless of the socioeco-

nomie status of the students (Bandura, 1997). Organizational features found to be related to teachers' efficacy beliefs include an orderly culture focused on a strong press for academics, administrators who were responsive to teachers' concerns and encouraged them to try new ideas, and teachers who encouraged one another in their attempts to address student needs. When the principal displayed strong leadership, encouraged innovation, and was responsive to teachers' concerns, teachers' collective efficacy beliefs have been found to be greater (Fuller & Izu, 1986; Newman, Rutter, & Smith, 1989). In addition, higher levels of collective efficacy were associated with higher levels of teacher self-efficacy (Goddard & Goddard, 2001) as well as higher student achievement (Goddard, Hoy, & Woolfolk Hoy, 2000, 2004; Tschannen-Moran & Barr, 2004).

While these studies provide some helpful clues as to the relationship between self-efficacy beliefs and school context, the measures used to tap teachers' self-efficacy beliefs were not as well developed as they might be, ranging from a single item or a set of four items (including two that tapped satisfaction rather than self-efficacy in the HSAB dataset), to measures based on the Gibson and Dembo (1984) measure which has been shown to have a number of psychometric problems (Henson, 2002). In addition, none of them directly assessed the impact of verbal persuasion, an element that Bandura (1997) proposed would be important to the development of self-efficacy beliefs.

3. Self-efficacy beliefs in flux

Efficacy beliefs are considered to be most pliable early in learning. Of the four sources of efficacy beliefs proposed by Bandura (1997), mastery experiences are thought to be the most potent. Other sources will likely have the greatest impact early in learning when fewer mastery experiences are available. After an abundance of mastery experience accumulates, the other three sources are less likely to be considered. Once self-efficacy beliefs have been firmly established, Bandura suggested that it would take a shock of some kind to provoke a reassessment.

There is a small amount of evidence to suggest that context variables may be particularly salient among novice teachers and teachers who move into a new setting. Novice teachers who gave higher ratings to the adequacy of support they had received at the end of their first year evidenced

stronger self-efficacy beliefs (Burley, Hall, Villeme, & Brockmeier, 1991; Hall, Burley, Villeme, & Brockmeier, 1992; Woolfolk Hoy & Burke-Spero, 2005). In examining the efficacy beliefs among both novice and experienced teachers during their first year of teaching in an urban district, experienced teachers generally saw a decrease in their self-efficacy in their initial year of teaching in that context (Chester & Beaudin, 1996). Certain school practices apparently contributed to increased efficacy among the newly hired teachers. The greater the opportunity for collaboration with other adults and the more observations that were made, the greater the resulting sense of efficacy.

The results of a study that examined the differential relationships between novice and experienced teachers' self-efficacy judgments and their assessments of key resources and supports in their teaching contexts are reported. Greater knowledge of the antecedents of self-efficacy beliefs of teachers can expand scholars' understanding of this construct as well as assist teacher educators, principals, and other practitioners in fostering teachers' sense of efficacy. Benefits may include greater teacher motivation and student outcomes associated with enhanced teacher self-efficacy beliefs.

4. Methods

This study explored several potential sources of teachers' self-efficacy beliefs to see if differences could be found between novice and experienced teachers. The contextual elements explored included teachers' rating of the abundance of available teaching materials and various forms of verbal persuasion such as the interpersonal support from administrators, colleagues, parents, and the community. We also examined mastery experiences in the form of teachers' satisfaction with their past teaching performance as a source of efficacy judgments.

4.1. Measures

All participants completed anonymous surveys that included the *Teachers' Sense of Efficacy Scale* (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) as well as items that assessed perceptions of support and satisfaction with professional performance, demographics, and information about the teaching context.

4.1.1. Teachers' Sense of Efficacy Scale

Teachers' self-efficacy beliefs were measured using the TSES (Tschannen-Moran & Woolfolk Hoy, 2001). This measure consists of 24 items, assessed along a 9-point continuum with anchors at 1—Nothing, 3—Very Little, 5—Some Influence, 7—Quite A Bit, and 9—A Great Deal. The instructions direct the teacher to, "Please respond to each of the questions by considering the combination of your *current* ability, resources, and opportunity to do each of the following in your present position." The scale includes three 8-item subscales: *Efficacy for Instructional Strategies*, *Efficacy for Classroom Management*, and *Efficacy for Student Engagement*. In previous research, reliabilities for the full scale have ranged from .92 to .95, and for the subscales from .86 to .90. Sample items include:

Efficacy for Instructional Strategies

- To what extent can you provide an alternative explanation or example when students are confused?
- How well can you implement alternative teaching strategies in your classroom?

Efficacy for Classroom Management

- How much can you do to control disruptive behavior in the classroom?
- How much can you do to calm a student who is disruptive or noisy?

Efficacy for Student Engagement

- How much can you do to motivate students who show low interest in schoolwork?
- How much can you do to get students to believe they can do well in school work?

4.1.2. Teaching setting and teacher demographics

Teachers were asked to designate the setting in which they taught as suburban, urban, or rural. Teachers were also asked to report the level at which they taught (preschool coded as 1, elementary coded as 2, middle school coded as 3, and high school coded as 4), and their number of years of teaching experience. In addition, teachers were asked for their gender and the racial or cultural group with which they identified. Finally, teachers were asked to rate the resources (materials) provided by their school from 1 (nonexistent) to 9 (excellent).

4.1.3. Verbal persuasion/support

Participants were asked to rate the quality of the support they had received in four areas: interpersonal support provided by the administration of their school, interpersonal support provided by colleagues, parental support and involvement in their classrooms, and community support provided for their classrooms. These items were assessed along a 9-point continuum with anchors at 1—Nonexistent, 3—Poor, 5—Adequate, 7—Good, and 9—Excellent. Sample items include:

- Rate the interpersonal support provided by your colleagues at your school.

4.1.4. Mastery experience

While self-efficacy beliefs are anticipatory in nature, looking toward the future with the expectation of either success or failure, they are based in part on an assessment of past performances. To assess the teachers judgments about the success they had achieved in teaching recently, participants were asked to rate their level of satisfaction with their own professional performance along a 9-point continuum with anchors at 1—Nonexistent, 3—Poor, 5—Adequate, 7—Good, and 9—Excellent.

- Rate your satisfaction with your professional performance this year.

4.2. Participants

The participants were 255 teachers who were graduate students at three state universities, two in Ohio and one in Virginia as well as teacher volunteers from two elementary schools, one middle school, and one high school in those same states. Virtually all eligible teachers present in the graduate education classes completed useable surveys. Although the surveys were distributed to all teachers in the participating schools, they were not compelled to complete them so that it may have been only the more committed or engaged teachers that returned useable surveys.

Teachers in the sample had from 1 to 29 years of teaching experience with a mean of 8.2 years ($SD = 6.8$), and ranged in age from 21 to 57 years (mean = 34.8 years, $SD = 9.8$). The sample included 215 Caucasians, 22 African Americans, 3 Latinos/Latinas, 2 Asian Americans/Pacific Islanders, and 5 who self-identified as “other.” Two-thirds of the participants were female ($N = 170$). Of

Table 1
Comparison of sample teachers to United States teachers

Teacher characteristic	Sample	US teachers
Female/male	66%/33%	75%/25%
Mean age	35	43
Mean teaching experience	8.2	15
European American	87%	90%
African American	9%	6%
Latinas, Asian/Pacific Islanders, other	4%	5%
Elementary school	40%	53%
Middle school	29%	22%
High school	31%	25%

those who indicated the grade level at which they taught, 31% taught high school, 29% taught middle school, 40% taught elementary grades. Table 1 compares the sample with teachers in the United States. The current sample had more males and was younger and less experienced than US teachers in general, but the ethnic diversity of the sample was similar to teachers generally. Compared to US teachers, the sample had a smaller proportion of elementary teachers in relation to middle school and secondary teachers, which may explain the larger representation of males in the sample (National Education Association, 2003) (see Table 1).

Because of Bandura’s (1997) contention that efficacy beliefs are most at play early in learning and, once established, become resistant to change, the sample was divided into two subsamples: *Novice Teachers*, with 3 or fewer years experience ($n = 74$), and *Career Teachers* with 4 or more years of experience ($n = 181$). A scatter plot of the TSES and years of experience showed a jump in the lowest self-efficacy scores after 3 years, indicating that after 3 years most teachers had either strengthened their self-efficacy beliefs or had left the field. In addition, 3 years of experience has often been used to delineate novice teachers in the policy arena (cf. Watkins, 2003).

5. Results

First, because it is a relatively new measure, the Teacher Sense of Efficacy scale was tested using factor analysis and reliability analysis. Then the scores of novice and career teachers were examined for differences. Next, correlational analyses were conducted to examine the antecedents of teachers’ self-efficacy beliefs. And finally, multiple regression analysis was used to explore the differential impact

of various sources of self-efficacy among novice and career teachers.

5.1. Teacher self-efficacy

To test the appropriateness of using the full TSES scale, we conducted a second-order factor analysis. All three factors loaded on a single factor (eigenvalue = 2.14) that explained 71% of the variance in teachers' self-efficacy beliefs, with coefficients of .82 (*Instructional Strategies*), .70 (*Classroom Management*), and .74 (*Student Engagement*), respectively. Consequently, the full scale was used in the analyses. The reliability of the full 24-item scales was .93. Reliabilities for the teacher sense of efficacy subscales were .87, .88, and .84, respectively.

Means and standard deviations for the self-efficacy and support variables for novice and career teachers are presented in Table 2. *T*-tests indicated that career teachers rated themselves significantly higher on overall self-efficacy than novice teachers (7.29 vs. 6.87) as well as on two of the three subscales: *Instructional Strategies* (7.58 vs. 6.99) and *Classroom Management* (7.61 vs. 7.03). On the *Student Engagement* subscale, there was no significant difference between the scores of the two groups. Career teachers reported significantly higher interpersonal support from their administration (6.54 vs. 5.97), and more teaching resources (6.2 vs. 5.98) as well as greater satisfaction with their professional performance (7.55 vs. 6.94). Perceptions of interpersonal support from colleagues,

parents, and the community were not significantly different for novice and experienced teachers.

Correlations. The outward characteristics of the schools and of the teachers themselves did not prove to be potent predictors of Teachers' Self-Efficacy Beliefs. None of the demographic and school setting variables tested: gender, race, teaching experience, age, teaching setting (urban, suburban, rural) or school level (preschool through high school), were significantly related to *Teachers Sense of Efficacy* for Novice Teachers, and only school level was related ($r = .21$) for Career Teachers.

The contextual variable most strongly related to *Teachers' Sense of Efficacy* for novice teachers was teaching resources ($r = .32$). For career teachers, resources support was much less strongly related to judgments of self-efficacy ($r = .17$). Among novice teachers, none of the verbal persuasion variables was significantly related to TSES. For career teachers, the support and involvement of parents ($r = .15$) and community support ($r = .19$) were weakly related to self-efficacy beliefs (see Table 3).

Mastery experience, examined as satisfaction with professional performance, was moderately related to *Teacher Sense of Efficacy* for both novice and career teachers, with somewhat stronger correlation among novices ($r = .46$ and $r = .36$, respectively). Interestingly, satisfaction with professional performance was related to all of the interpersonal support variables for career teachers (with r 's ranging from .25 to .38), as was resource support ($r = .27$). Among novice teachers, satisfaction with professional performance was only related to

Table 2
Means and standard deviations of efficacy and support variables for novice and career teachers

Variables	Novice teachers ($N = 74$)		Career teachers ($N = 181$)	
	Mean	SD	Mean	SD
Teacher sense of efficacy	6.87**	.89	7.29**	.78
Instructional strategies	6.99**	.99	7.58**	.88
Student engagement	6.57	1.02	6.69	1.02
Classroom management	7.03**	1.18	7.61**	.87
Resource support	5.98*	2.07	6.52*	1.95
Support from administration	5.97*	2.18	6.54*	2.13
Support from colleagues	6.86	1.91	7.00	1.77
Support from parents	4.84	2.43	5.18	2.15
Support from the community	4.98	2.17	5.33	2.18
Satisfaction with performance	6.94**	1.60	7.55**	1.11

Note: Scores range from 1 to 9, the higher the score, the greater the sense of efficacy or perceived support.

* $p < .05$.

** $p < .01$.

Table 3

Correlation analysis of novice and career teachers' sense of efficacy, support, and satisfaction with performance

	1	2	3	4	5	6	7
1. Teacher sense of efficacy		.32*	.08	–.14	.18	.00	.46**
2. Teaching resources	.17*		.36**	.40**	.47**	.42**	.21
3. Interpersonal support by administration	.10	.51**		.29*	.24	.18	.08
4. Interpersonal support from colleagues	.14	.35**	.55**		.32*	.18	.07
5. Parental support and involvement	.15*	.32**	.44**	.32**		.71**	.39**
6. Community support	.19*	.47**	.52**	.37**	.74**		.37**
7. Satisfaction with performance	.36**	.28**	.35**	.33**	.25**	.38**	

Note: Novice teachers are reported above the diagonal, career teachers are reported below the diagonal.

$N = 74$ novice teachers, $N = 181$ career teachers.

Table 4

Regression analysis of teachers sense of efficacy, context variables, and mastery experience

	Teacher sense of efficacy for novice teachers ($N = 74$)			Teacher sense of efficacy for career teachers ($N = 181$)		
	$R^2/\text{Adj } R^2$	SE	F (sig)	$R^2/\text{Adj } R^2$	SE	F (sig)
Step 1 Demographics	.03 (–.03)	.94	.53 (.67)	.02 (.00)	.76	.96 (.40)
Step 2 Context	.20 (–.10)	.88	2.02 (.08)	.11 (.07)	.73	2.97 (.01)
Step 3 Verbal persuasion	.31 (.16)	.85	2.06 (.05)	.14 (.08)	.73	2.23 (.02)
Step 4 Mastery experiences	.49 (.36)	.74	3.81 (.00)	.19 (.12)	.71	2.90 (.00)
	Beta	t	Sig	Beta	t	Sig
School level taught (Step 2)				–.21	–2.62	.010
Resource support (Step 2)	.49	3.50	.001			
Support of colleagues (Step 3)	–.32	–2.40	.020			
Community support (Step 3)	–.38	–2.29	.027			
Satisfaction w/performance (Step 4)	.47	3.87	.000	.26	2.91	.004

support from parents and the community ($r = .39$ and $.37$, respectively). Whether novices felt satisfied with their professional performance was not related to the amount of resources available nor support from administrators and colleagues.

5.2. Multiple regression

Parallel hierarchical regression analyses were conducted for novice and career teachers. The variables were entered in four groups, beginning with demographic variables (gender, race, and years of experience) in the first group, then context variables (school level and setting, resource support) in the second. The third group added included the verbal persuasion variables (interpersonal support of administrator, colleagues, parents, and community). The last addition was mastery experience rating (satisfaction with performance) (see Table 4).

For novice teachers, the R^2 increased from .02 to .49 with the addition of subsequent sets of variables and the F statistic became statistically significant with the addition of verbal persuasion. Resources support made a significant independent contribution ($\beta = .49$), and the Interpersonal Support of Colleagues was significant in the third group ($\beta = -.32$). In the fourth group, Community Support ($\beta = -.38$) and Satisfaction with Performance ($\beta = .47$) were added as significant predictors. The negative beta weight for Interpersonal Support of Colleagues and Community Support may be the result of the shared variance with resource support (which were correlated .35 and .42 in bivariate correlations) resulting in Resource Support slightly overestimating the linear relationship. No significant variance in teachers' sense of efficacy was explained by demographic variables alone. Thirty-one percent of the variance in novice

teachers' self-efficacy was explained with the combination of demographic, context, and verbal persuasion variables, and 49% of the variance for novice teachers was explained when mastery experiences were added.

Among career teachers, the R^2 increased from .02 to .19 with the addition of subsequent sets of variables and the F statistic became statistically significant with the second group. The contextual variable School Level Taught made a significant independent contribution to explaining the variance Teachers Sense of Efficacy in the second group ($\beta = -.21$) and continued to be the only variable to make a significant independent contribution even when the set of verbal persuasion variables was added. The addition of mastery experience (Satisfaction with Performance) made a significant independent contribution to explaining the variance in TSES ($\beta = .26$). Eleven percent of the variance in teachers' sense of efficacy was explained by the demographic and context variables, 14% with the addition of verbal persuasion, and 19% with the addition of mastery experiences.

6. Discussion

In examining the self-efficacy beliefs of novice teachers compared to experienced teachers, we found somewhat lower mean self-efficacy beliefs among the novices than among the career teachers. This lower assessment of their teaching capabilities is not surprising given the relative inexperience of these teachers. It is also possible that teachers who start their careers with low self-efficacy either tend to find better instructional strategies to improve their teaching performance over time, thus increasing their sense of efficacy and if they do not, they leave the profession. In the United States, up to 25% of beginning teachers do not return for their third year and almost 40% leave the profession within the first 5 years of teaching (Gold, 1996; Harris & Associates, 1993). Previous research has suggested that those who leave teaching have significantly lower self-efficacy beliefs than teachers who remain in teaching (Glickman & Tamashiro, 1982). Teacher self-efficacy has been linked to the amount of stress experienced in teaching (Smylie, 1988), and to the level of professional commitment for preservice, elementary and middle-school teachers (Coladarci, 1992; Evans & Tribble, 1986). Although we did not directly assess career plans or attrition, our results could be interpreted as being in

concert with these previous findings if the higher mean for career teachers is the result of higher attrition among lower self-efficacy teachers.

In a more fine-grained analysis, the experienced teachers in our sample were found to have higher self-efficacy beliefs than the novice teachers in two of the three subscales of the TSES: *Efficacy for Instructional Strategies* and *Efficacy for Classroom Management*. It is interesting, however, that there were no differences between novice and experienced teachers in *Efficacy for Student Engagement*. One explanation might be that the field of teaching has only recently begun to focus on the importance of *Student Engagement* and to develop strategies to cultivate it. In the absence of any core technology, teachers have been left to their own creativity and strength of personality to cultivate strategies for *Student Engagement* or to manage in its absence. A second possibility is that attending to student engagement is a more developmentally advanced task for teachers; instruction and management concerns often dominate the time and thoughts of novices (Meister & Melnick, 2003; Pigge & Marso, 1997).

6.1. Demographics

Demographic variables such as race and gender were not found to be systematically related to the self-efficacy beliefs of either novice or career teachers. Demographic variables have typically not been strong predictors of the efficacy beliefs of teachers. These variables were included as controls as there is no theoretical reason to suspect that they would be related to self-efficacy beliefs except possibly the availability of vicarious experiences with similar models in the intended realm of teaching. It might seem as though teaching experience would be related to teachers' self-efficacy beliefs, but if self-efficacy beliefs tend to be fairly stable once set, then they would not necessarily tend to increase as years of experience increase.

6.2. Context

It is of interest that the contextual variable of school setting was unrelated to the self-efficacy beliefs of both novice and career teachers. Conventional wisdom might suggest that urban teaching environments are more challenging than suburban or rural contexts and, consequently, that teachers in urban settings would be expected to evidence lower

sense of efficacy. And yet, it seems that the efficacy beliefs of urban teachers do not differ from those of teachers in other contexts.

The availability of resources was a contextual element whose relationship to efficacy judgments differed for novice and career teachers. Teaching resources made a significant independent contribution to explaining variance in teachers' sense of efficacy only for novice teachers. Career teachers' judgments of their ability to produce student learning was not significantly related to the availability of resources in the teaching context. For experienced teachers Teaching Level was the only contextual variable that made such a contribution, with higher efficacy beliefs found among those who taught the youngest children. Differences by grade level were not found among novice teachers, however. It is possible that novice teachers were more idealistic than their more experienced peers about being able to reach students regardless of age, that they perceived they had been better prepared to cope with the needs of older students and so were undaunted by the challenges they might face, or that the mix of hope and fear was similar for beginning teachers regardless of the size and age of the students taught.

6.3. Verbal persuasion

In bivariate correlations, the support of parents and the community were related to career teachers' self-efficacy beliefs, but these variables did not make a significant contribution to explaining teachers' sense of efficacy when entered with other variables in the regression analysis. Conversely, none of the verbal persuasion variables were correlated to the self-efficacy beliefs of novice teachers. But both the support of colleagues and support of the community made a significant contribution to explaining self-efficacy beliefs in the regression analysis. The negative beta weight for support of colleagues among novice teachers is consistent with the slightly negative, though nonsignificant, bivariate correlation. Self-efficacy beliefs are likely to be lower for people who rely on a great deal of assistance early in learning (Bandura, 1997). It may be that teachers who are struggling in their early years in their careers tend to lean more heavily on the support of their colleagues. The lack of verbal persuasion as a predictor of self-efficacy beliefs among career teachers may indicate that with the accumulation of mastery experiences, verbal persua-

sion comes to play a less significant role in sustaining teachers' self-efficacy beliefs.

6.4. Mastery experiences

Mastery experiences, examined as satisfaction with past professional performance, was moderately related to *Teacher Sense of Efficacy* for both novice and career teachers. For career teachers, the higher their ratings of support received (both in the form of verbal persuasion from administrators, colleagues, parents, and the community, and as resource support) the higher the teachers tended to rate their satisfaction with their professional performance—but not their sense of efficacy. Among novice teachers, satisfaction with professional performance was related to support from parents and the community.

The results of this study revealed quite different patterns among the set of variables examined and their relationship to the self-efficacy beliefs of novice and career teachers. For novice teachers, 49% of the variance in TSES was explained by the set of contextual variables and mastery experience, while for career teachers only 19% of the variance was explained. Bandura (1997) asserted that self-efficacy beliefs are most in flux early in learning and tend to become fairly stable and resistant to change once set. For novice teachers, who have few mastery experiences to draw upon, other sources of self-efficacy seem to be more salient in their self-assessments of efficacy, including vicarious experience, verbal persuasion, and emotional arousal. Thus, the analysis of the teaching task may be most explicit for novice teachers and for those entering a new teaching assignment, while experienced teachers are likely to rely more heavily on memories and interpretations of similar past teaching experiences (Gist & Mitchell, 1992; Tschannen-Moran et al., 1998). Contextual factors contributing to the analysis of the teaching task would consequently play a stronger role in the self-efficacy beliefs of novice teachers than for those with more experience. The findings of this study begin to lend some empirical evidence to the predictions made in the theoretical realm.

7. Implications

It is of both theoretical and practical importance to understand the sources teachers tap when making judgments about their capability for instruction.

The findings in this study begin to define more and less important sources of information that teachers consider when making self-efficacy judgments and how these sources are weighed differently by novice and experienced teachers. In determining self-efficacy for teaching, novice teachers do seem to make a more explicit analysis of the teaching task than career teachers, as evidenced by the greater contribution of contextual factors to novice teachers' efficacy judgments. The availability of teaching resources was a particularly salient aspect of the context for novice teachers.

Verbal persuasion, assessed as the interpersonal support of administrators, colleagues, parents, and members of the community, also appeared to be more pertinent for novice teachers' than for career teachers' self-efficacy beliefs. The support of colleagues and of the community made significant contributions to explaining variance in novice teachers' self-efficacy beliefs, but made little contribution for career teachers. Experienced teachers have apparently adapted to the typical isolation of their work lives and have learned to base their efficacy judgments on other sources. As schools have traditionally been structured, with little teaching taking place in the presence of other adults, perhaps it is not surprising that verbal persuasion has not played a larger role in teachers' sense of their capability for instruction.

Neither novice nor career teachers seem to base their self-efficacy beliefs on the support of their administrators. Teachers form beliefs about their capability to impact student learning whether support from administrators is available or not. The perfunctory twice-a-year visit from administrators with a preprinted evaluation form evidently does not provide enough feedback to shape a teacher's belief about his or her capability. Because of the dearth of meaningful feedback from administrators in traditional supervisory practice, it is perhaps not surprising that teachers do not look to school leaders as significant sources to inform their self-efficacy judgments.

As Bandura (1997) predicted, mastery experiences made the strongest contribution to self-efficacy judgments for both beginning and career teachers. This variable, assessed as satisfaction with teaching performance "this year," was especially strong for novice teachers. Career teachers, with an abundance of mastery experiences, may have a fairly stable sense of efficacy whether they are happy with how the current school year is going or not.

These results invite further exploration into the antecedents of teachers' self-efficacy beliefs. More research into important sources of efficacy information that would tap the relative weight of vicarious experiences, verbal persuasion, mastery experiences, physiological arousal and contextual factors would be of great value as we attempt to learn how to better train and equip teachers for their complex tasks. For example, as results of this study suggest, inputs such as verbal persuasion, vicarious experiences, and emotional arousal may well be most salient for preservice teachers who lack significant mastery experiences. Qualitative studies about the effect of vicarious experiences on preservice and novice teachers would be useful. Teachers entering the field have typically experienced "apprenticeships" of at least 17 years as students. What are the qualities of the teachers they remember and what is the impact of these memories on the preservice teachers developing sense of efficacy as teachers? Likewise, what is the impact of the modeling by university professors and by cooperating teachers during student teaching? What is the impact of images of teachers in movies and the news media? Studies such as these would be helpful as we seek to learn about this source of self-efficacy beliefs among preservice and novice teachers.

Longitudinal designs that would allow researchers to observe the periods of flux and stability of self-efficacy beliefs at different career stages (preservice, novice, early, mid and late career) would be of value, and some are appearing (cf. Woolfolk Hoy & Burke-Spero, 2005). In addition, studies that examined teachers' "calibration" of their efficacy as teachers, that is, the match between their self-assessment of their capability as teachers with other more objective measures would be useful. Several researchers have made use of observers' performance ratings of teachers in relation to self-report data of efficacy beliefs (Riggs, 1995; Saklofske, Michaluk, & Randhawa, 1988; Trentham, Silvern, & Brogdon, 1985), and more studies of this kind would be useful now that newer measures of efficacy beliefs are available that have overcome some of the psychometric difficulties of earlier measures (Tschannen-Moran & Woolfolk Hoy, 2001).

Teachers' self-efficacy is a little idea with big impact. Teachers' judgment of their capability to impact student outcomes has been consistently related to teacher behavior, student attitudes, and student achievement. We need to know more about how these beliefs are formulated and sustained

throughout the teaching career. This study has demonstrated that, compared to career teachers, novice teachers' self-efficacy does seem to be more influenced by contextual factors such as verbal persuasion and the availability of resources. If future research confirms that teachers' self-efficacy beliefs are most malleable early in learning and are resistant to change once set, then it would behoove teacher educators and school leaders to provide preservice and novice teachers the kinds of supports that would lead to the development of strong, resilient self-efficacy beliefs.

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