College Instructors' Sense of Teaching and Collective Efficacy

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The purpose of this study was to provide an exploratory investigation of college-level instructors' sense of teaching and collective efficacy. We investigated the relations of teacher- and collective-efficacy with a series of variables: experience, professional level, age, gender, academic domain (for teacher-efficacy only), and academic department (for collective-efficacy only) as well as the relationship between collective- and teacher-efficacy. Data from 117 graduate students, lecturers, and faculty were analyzed. Differences in teacher-efficacy were found with respect to gender and academic domain. Differences in collective-efficacy were not found across departments, experience levels, or professional levels. Teacher-efficacy was significantly correlated with collective-efficacy.

In a time when more and more students are coming to the university and concerns such as grade inflation, plagiarism, and academic dishonesty are becoming more salient, it seems pertinent that we begin to look at the motivations and beliefs of the professionals who guide the learning process at this level. Efficacy beliefs refer to judgments of one's ability to perform actions required to achieve desired outcomes (Bandura, 1977, 1997). Two types of efficacy beliefs have been identified as integral to education; these are teacher-efficacy and collective-efficacy. Teacher-efficacy has been identified as a crucial construct in the research on teachers and teaching, whereas, collective-efficacy has only recently begun to receive attention with regard to its role in educational settings (see Goddard, 2000 for a review). However, very few studies have investigated the influence of teacher-efficacy in the population of college-level instructors (e.g., Heppner, 1992; Preito & Meyers, 1999; Young & Kline, 1996). Further, we found only one study that addressed the role of collective-efficacy with this population (Loup, Clarke, & Ellett, 1997).

Ideally, one of the purposes of higher education is to help learners in various fields to develop meaningful understandings about their domains of study and to facilitate the development of critical thinking within and among those domains. One expects that the role of teachers at the college level is distinct from the role of those who work with younger students in mandatory school settings. Still, we feel we can be guided by the research conducted with the traditional teaching population and find linkages to how this work may serve to improve education at the college level. Research at the elementary and secondary levels has demonstrated connections between teachers' sense of efficacy and the choices they make, the teaching strategies they use, and the achievement of their students. If we extend these findings to the university level, one would expect that more efficacious professors will strive to challenge their students in a way that stretches their minds and makes them think about the world differently. However, in order to make these leaps, we must first gain an understanding of individual and collective beliefs of college level instructors. Once this information is gleaned we can then begin to determine how the construct of self-efficacy can be used to understand the teaching processes of these teachers.

To better understand the potential role of efficacy beliefs at the college level, it is important to review what we currently know about teacher- and collective-efficacy. Therefore, the sections that follow provide a brief overview of each construct. Following these overviews a review of the studies that have investigated efficacy beliefs among college level instructors will be given. Finally, the specific aspects and findings of the current study are explained.

Review of the Literature

Teacher-efficacy

Bandura (1993) presented the construct of self-efficacy as the beliefs one has about his or her ability to perform the actions required to achieve specific outcomes. Teacher-efficacy refers to "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 233). Pajares (1992) contended that "beliefs are the best indicators of the decisions individuals make throughout their lives" (p. 307). Thus, it follows that teachers' beliefs about their teaching abilities may be an indicator of their future behavior, decisions, and classroom organization. In the teaching context, teacher-efficacy is expected to influence the goals teachers identify for the learning context as well as to guide the amounts of effort and persistence given to the task (Bandura, 1997; Tschannen-Moran, Woolfolk-Hoy, Hoy, 1998).

Researchers have investigated the differences in teacher-efficacy beliefs across experience or expertise levels. Much of this work has investigated the

differences between pre-service and practicing K-12 teachers' levels of efficacy. There has been some confirmation of the claim that teacher-efficacy is highest among pre-service teachers and that this level of efficacy drops, often drastically, during the first year of teaching (Brousseau, Book, & Byers, 1988; Soodak & Podell, 1997). Soodak and Podell (1997) found that after the drop during the first year of teaching, there is a consistent increase in efficacy beliefs with experience. However, these beliefs never again reach the high, perhaps inflated, levels found in pre-service teachers. Soodak and Podell (1997) also found that these extreme highs and lows did not exist for secondary teachers. In fact, these researchers reported that secondary teachers were significantly more homogenous in their efficacy beliefs and were less efficacious overall as compared to elementary teachers.

Collective-efficacy

Bandura (1997) defined collective-efficacy as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (p. 477). Similar to an individual's sense of personal efficacy, the collective-efficacy beliefs of groups can affect their goal setting, motivation, effort, and persistence with challenging tasks or situations. Within the context of this study, one can consider an academic department to consist of instructors who work together, to some degree, in a collective environment to enhance academic capabilities of students. Instructors' sense of collective-efficacy, therefore, might influence a department's ability to overcome challenging situations, set appropriate goals for students, and work towards creating a positive environment in which students can reach their academic potential.

Recently researchers have begun to empirically explore the construct of collective-efficacy within schools, specifically among teachers (Bandura, 1993; Goddard, 2000; Goddard & Goddard, 2001; Goddard et al., 2000). This research has consistently shown collective-efficacy to be related to student achievement differences among K-12 schools in reading and mathematics (Bandura, 1993; Goddard, 2000; Goddard et al., 2000) as well as to varying levels of teachers' individual sense of efficacy (Goddard & Goddard, 2001). Goddard and Goddard (2001) found that teachers' personal sense of efficacy was higher in schools that were more collectively efficacious. Furthermore, Bandura (1993) found that characteristics of the student population (i.e., socioeconomic status, student turnover rates, and student absenteeism) were related to teachers' sense of collective-efficacy. The overall findings of these studies illustrate the importance of this construct for explaining both school-level effects on achievement, and effects on teachers' desire to improve their teaching practice.

Review of Work Investigating Efficacy at the College Level

Few studies have examined teacher and collective-efficacy of college level instructors. Researchers have investigated the role of self-efficacy in improving university-level teaching (i.e., Heppner, 1992; Preito & Meyers, 1999; Young & Kline, 1996). One focus in this research has been on the training of Graduate Teaching Assistants (GTAs) and the influence formal training has on the development of their self-efficacy for teaching (Heppner, 1992; Preito & Meyers, 1999). Other work has investigated the role of teacher-efficacy in university teachers' motivation to improve their teaching (Young & Kline, 1996). Results revealed that outcome expectancy and self-efficacy beliefs were related to motivation.

Researchers of self-efficacy in university faculty have provided descriptions of efficacy by gender (Brennan, Robison, & Shaughnessy, 1996; Landino & Owen, 1988; Schoen & Winocur, 1988); professional rank (Schoen & Winocur, 1988); and age, experience, and gender make-up of academic departments (Landino & Owen, 1988). These studies focused on *academic efficacy*, which is considered to be the individual's belief in his or her abilities to carry out the tasks required for an academic position, namely research, teaching, and service (Landino & Owen, 1988; Schoen & Winocur, 1988). There seems to be some evidence that efficacy beliefs are related to gender; however, socialization processes, role expectations, and the age of the individual when entering the field may all have played a role for which gender served as a proxy variable. Teaching in the realm of higher education seems to be a role that is distinct from other aspects of an academic's life. For instance, the work of Schoen and Winocur (1988) demonstrated that professional rank, gender, and experience were all related to individuals' levels of *academic* self-efficacy, in which teaching is one component.

Loup and colleagues (1997) investigated teacher- and collective-efficacy beliefs among college level instructors. These researchers explored the dimensions of personal and collective-efficacy of K-12 teachers (n = 1041), college faculty (n = 799), and social workers (n = 812). Factor analytic procedures conducted on the K-12 teachers revealed factors for both teaching and collective-efficacy. However, for the higher education faculty these same procedures found evidence of a teaching-efficacy factor, but not a collective-efficacy factor. These authors concluded that university faculty work primarily autonomously and, therefore, do not

reveal the interdependence evident in K-12 teachers (Loup et al., 1997).

Current Study

The preceding studies serve as a backdrop for the current investigation. Our research provides an exploratory investigation into how current conceptualizations of the constructs of teacher- and collective-efficacy manifest in college-level instructors. Specifically, we sought to determine what, if any, relationship existed between college-level instructors' sense of teacher-efficacy and prior teaching experience, professional level, academic domain, and a series of demographic variables, which included the sex, age, and ethnicity of the instructor.

Furthermore, we explored the role of collective-efficacy in a university setting, by investigating how collective-efficacy differed across academic departments as well as the relationship between perceptions of collective-efficacy and professional level of the instructor. Finally, we examined the relationship between teacher-efficacy and collective-efficacy of college-level instructors.

Method

Participants

The sample included 75 graduate students, 24 non-tenured faculty, and 18 tenured faculty members from a Research I university in the mid-Atlantic region of the United States. The graduate students were divided based on teaching experience: 24 graduate students with no college-level teaching experience and 51 graduate teaching assistants who were currently assisting a professor with a course or teaching their own class autonomously. Fifty-four of the participants were male and 63 were female. The ethnic backgrounds of participants in this study were identified as 79% Caucasian, 6% African American, 5% Asian, 1% Hispanic, and 9% Other.

Procedure

Questionnaires were administered using an online survey tool. An email notification requesting participation in the study was sent to every campus department secretary or department chair with the request that it be forwarded to each department's faculty and graduate student body. The email participation request included a web link that participants could follow directly to the online survey. Answers were then submitted anonymously to an email address monitored by the authors. A second email request was sent out a month later to remind graduate students and faculty to complete the online survey. Email requests for participation were sent to 85 university departments, of which members from 28 departments responded.

Measures

Background information. Participants were asked to report demographic information regarding their sex, age, ethnicity, their highest degree held, and their position within the university (i.e., graduate student, graduate assistant, lecturer, assistant professor, associate professor, full professor). In addition, participants were asked a series of questions related to their teaching experience, such as how many semesters they had taught and additional teaching experience they had outside university teaching. Teaching experience beyond the university was assessed by requesting participants to identify whether they had ever engaged in a series of teaching or teaching related tasks. These tasks included elementary or secondary level teaching, tutoring experiences, church related teaching, adult education, and other non-college teaching experience not listed. Thus, we used two indicators for teaching experience, the number of semesters teaching at the college level, and non-university teaching experiences. The latter of these was determined based on the number of teaching tasks reported from the above list, a maximum score for non-university teaching experience was 5 and a minimum score was zero.

Teacher-efficacy. The variable of teacher-efficacy was measured using a 19-item adaptation of an early version of the Ohio State Teacher-efficacy Scale (OSTES, Tschannen-Moran & Woolfolk Hoy, 2000), now referred to as the Teacher Sense of Efficacy Scale (TSES, Tschannen-Moran & Woolfolk Hoy, 2001). This measure is designed to assess efficacy for three aspects of teaching: student engagement, instructional practice, and classroom management (Tschannen-Moran & Woolfolk-Hoy, 2001).

Individual items from the TSES were slightly modified to better reflect the students and environment at the university level. Specifically, "schoolwork" was changed to "course work"; "school/classroom rules" was changed to "course policies," and references to "class" or "classroom" were changed to "course." Additionally, throughout the adapted measure we altered the references between "students" and "undergraduates." Items pertaining to all three aspects of teaching (i.e., student engagement, instructional practice, and classroom management) were maintained in the adapted scale, since college level instructors encounter challenges in each of these domains of teaching. Specifically, undergraduate instructors often work to engage their students in and motivate their students toward course material, think about strategies

Table 1
Factor Loadings Orthogonal Rotation

Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
1. How much can you do to get through to the most difficult undergraduate students?	**.756**	.096	.176
10. How much can you do to overcome a student's resistance to a particular topic?	**.754**	.049	.133
4. How much can you do to motivate students who show low interest in course work?	**.745**	.250	.081
12. How much can you do to improve the understanding of a student who is failing?	**.669**	.107	.036
9. To what extent can you influence the self-discipline of your students?	**.661**	.149	.252
15. How much can you use a variety of assessment strategies?	.086	**.785**	.190
17. How well can you implement alternative strategies in your classroom?	.471	**.730**	-.025
16. To what extent can you vary teaching strategies to best communicate information to your students?	.494	**.634**	.015
6. How much can you do to ensure that your assessment strategies accurately evaluate student learning?	-.254	**.606**	.420
7. To what extent are you able to create lessons that hold students' interest?	.466	**.532**	-.117
13. How much can you do to calm a student who is disruptive or noisy?	.302	.020	**.800**
3. How much can you do to control disruptive behavior in the classroom?	.148	-.041	**.786**
11. How much can you do to get students to follow course policies?	.033	.205	**.501**

Items deleted after first factor analysis:
2. How much can you do to repair student misconceptions?
5. How much can you do to get undergraduates to believe they can do well in course work?
8. How much can you gauge student comprehension of what you have taught?
14. How much can you do to adjust your lessons to the proper level for individual students?
18. How much can you do to get students to attend class regularly?
19. How much can you do to get students in your course to respect one another?

to best meet their instructional goals, and prevent troublesome and distracting behavior in the classroom (e.g., text messaging, student side conversations, argumentative students).

We employed principal components analysis with parallel analysis to determine the number of factors to extract. Parallel analysis is recommended as a method for determining the number of factors to extract in contrast to the Kaiser-Guttman rule (i.e., extracting factors with eigenvalues greater than one) which often suggests more factors than are theoretically meaningful (Horn, 1965; Thompson & Daniel, 1996). This analysis suggested that three factors should be extracted. Once the number of factors to be extracted was determined, principal component analysis with orthogonal rotation was performed on the data received in response to the TSES.

An initial examination of the factor matrix indicated that 13 items had loadings greater than or equal to |.50|. Hair, Anderson, Tatham, and Black (1998) recommended factor loading cut-offs at |.55| for a sample of 100 and |.50| for a sample of 120. Therefore, we used the |.50| cutoff in this study. Hair, Anderson, Tatham, and Black (1998) also recommended the examination of communalities for unassigned variables (i.e., items). The communalities represent "the amount of variance accounted for by the factor solution for each variable" (p. 113). We implemented a .50 cut off for explained variance by the factor solution for each variable. Six items were found to not meet our expectations for factor assignment or explained variance (i.e., communality). Based on this finding, we chose to delete these items from our

analysis (Hair et al., 1998; see Table 1 for deleted items). Subsequently, we conducted a second parallel analysis and principal components factor analysis with orthogonal rotation on the 13 viable items (see Table 1 factor loadings).

The three factors included Efficacy for Student Engagement (e.g., "How much can you do to get through to the most difficult undergraduate students?"), Efficacy for Instructional Practice (e.g., "How much can you do to adjust your lessons to the proper level for individual students?"), and Efficacy for Classroom Management (e.g., How much can you do to get students to follow course policies?"). These factors are consistent with results of previous factor analysis findings of data gathered with this instrument (Tschannen-Moran & Woolfolk Hoy, 2001).

Subscale scores were created for each of the three factors by computing an unweighted average of the responses to each of the items corresponding to that factor. An overall teacher-efficacy score was also computed using the same procedure for all 19 of the items on the TSES. For the present sample, alpha coefficients of reliability were .82 for the student engagement subscale, .77 for the instructional practice subscale, .61 for the classroom management subscale, and .88 for the overall teacher-efficacy scale (to calculate overall teacher efficacy we used all 19 items).

Collective-efficacy. Collective-efficacy was measured using the Collective-efficacy Scale (Goddard et al., 2000). This was a 21-item scale made up of four different types of items: (a) group competence/positive, (b) group competence/negative, (c) task analysis/positive, and (d) task analysis/negative.

Directions for this scale were altered to emphasize the teaching of undergraduates and the collective as the department rather than school. Terms were altered in the instrument. "Teachers" was changed to "course instructors," "student" or "students" were changed to "undergraduate students" and "undergraduates" respectively, and references to "this school" were changed to "this department."

Goddard and colleagues (2000) assessed their scale and determined that that collective teacher-efficacy is a single construct, comprised of group competence and task analysis components. In the current study, we made the same theoretical and empirical conclusion to utilize a one-factor solution. Based on this decision, a collective-efficacy score was created by computing the unweighted average of responses to each of the 21 items. The alpha reliability coefficient for the current sample was .75.

Results

Relating Teacher-efficacy to Characteristics of College Level Instructors

Prior experience and professional level. We used correlational analysis to examine the relationship between teachers' prior experience teaching at the college level (number of semesters), teacher non-university experience, and teacher efficacy, and no significant relations were found. We also examined the relation between teachers' efficacy beliefs and their professional level. A series of ANOVAs was conducted to determine if graduate students, graduate teaching assistants, non-tenured faculty, and tenured faculty differed with regard to their efficacy beliefs. Interestingly, no significant differences were found. Upon further investigation, we discovered that our sample reported very similar efficacy beliefs on each of the three factors, regardless of their professional level (see Table 2 for a comparison of means).

Differences by academic domain. We were interested in understanding what, if any, relationship existed between an individual's field of study and his or her level or teaching efficacy. Participants for this study came from eight separate colleges within the university. However, in order to obtain homogeneity of variance, we chose to analyze the data from the three colleges that had similar numbers of participants. Therefore, a series of ANOVA tests was conducted to compare the colleges of Behavioral and Social Sciences, Education, and Arts and Humanities. These tests revealed a significant difference between levels of efficacy for instructional practice for instructors from the college of Behavioral and Social Sciences (M = 5.31, SD = 1.11) and those from the college of Education (M = 6.21, SD = .89), $F(2, 86) = 7.149$, $p = .001$, $eta^2 = .14$ (the effect

size, i.e., eta^2, of .14 can be interpreted as a large effect). Additionally, the mean overall efficacy score for Behavioral and Social Science instructors (M = 5.07, SD = .95) differed significantly from the overall efficacy score for Education instructors (M = 5.66, SD = .87), $F(2, 86) = 4.264$, $p = .02$, $eta^2 = .09$ (this can be interpreted as a medium effect).

Demographic variables. Analysis of variance procedures were used to investigate potential differences in teacher-efficacy along the demographic variables, of sex, age, and ethnicity. The results of these analyses demonstrated that males and females in this sample differ significantly in their levels of efficacy for student engagement ($F(1, 116) = 8.085$, $p = .005$, $eta^2 = .07$), and overall efficacy ($F(1, 115) = 10.253$, $p = .002$, $eta^2 = .08$), with females reporting higher levels of efficacy in each area (see Table 3 for a comparison of means). These findings suggest a medium effect for the study. Comparable findings with regard to efficacy for teaching were found by Brennan and colleagues (1996) who reported that female college instructors had higher levels of general teaching efficacy than males.

Similar analyses were employed on the data for ethnicity. However, there were no significant differences in levels of teacher-efficacy between ethnic groups. Pearson correlational analysis was performed to explore the relation between age and instructors' efficacy beliefs. No statistically significant relations were found.

Collective-efficacy

The role of collective-efficacy was explored in relation to academic department and the professional level of the respondents. Analysis of variance tests were employed on the data from participants across the 28 academic departments included in the study. These tests found no significant differences between the collective-efficacy beliefs of these departments. Furthermore, these collective-efficacy beliefs did not differ significantly by the professional level of the instructors.

Collective and Teacher-efficacy

The relationship between collective and teacher-efficacy was explored through the use of correlational analyses. These treatments produced moderate, yet significant, positive correlations between teachers' efficacy beliefs and their beliefs about collective-efficacy. Table 4 provides the Pearson r correlations of these relations as well as the r^2, the amount of variance explained by these relations, as an indicator of effect size. These correlations indicated significant relations among collective-efficacy and each of the

Table 2
Comparison of Means: Teacher-efficacy by Professional Level

Level (n)	Efficacy for Student Engagement		Efficacy for Instructional Practices		Efficacy for Classroom Management		Overall Teacher-efficacy	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Graduate Students (24)	4.50	1.22	5.80	1.07	5.81	1.38	5.34	0.99
Graduate TAs (51)	4.55	1.09	5.54	1.17	5.86	1.05	5.28	0.80
Non-Tenured Faculty (24)	4.65	1.56	5.88	1.13	5.97	1.18	5.45	1.05
Tenured Faculty (18)	4.18	1.166	5.60	1.06	6.03	0.98	5.15	0.80

Table 3
Comparison of Means: Teacher-efficacy by Sex

Efficacy Factors	Male M(SD)	Female M(SD)	F	p	eta^2
Student Engagement	4.16 (1.32)	4.79 (1.06)	8.085	.005	0.07
Instructional Practices	5.47 (1.15)	5.85 (1.08)	3.468	.065	na
Classroom Management	5.80 (1.16)	5.99 (1.10)	.756	.386	na
Overall Teacher-efficacy	5.03 (0.94)	5.54 (0.78)	10.253	.002	0.08

Table 4
Intercorrelations Between Teacher-efficacy and Collective-efficacy

n = 117	1 r (r^2)	2 r (r^2)	3 r (r^2)	4 r (r^2)	5 r (r^2)
1. Efficacy for Student Engagement	--				
2. Efficacy for Instructional Practices	.45** (.20)	--			
3. Efficacy for Classroom Management	.35** (.12)	.29** (.08)	--		
4. Overall Teacher-efficacy	.82** (.67)	.77** (.59)	.59** (.35)	--	
5. Collective-efficacy	.20** (.04)	.25** (.06)	.15 (na)	.30** (.09)	--

Note. * p < .05. ** p < .01.

efficacy dimensions. Furthermore, perceptions of collective-efficacy were positively related to teachers' overall efficacy score.

Discussion

Experience and Professional Level Differences in Teacher-efficacy

It is important to recognize that unlike studies of teacher-efficacy conducted with K-12 teachers, the participants in this study demonstrated no significant differences in teacher-efficacy across experience or professional levels. The non-teaching graduate students in this study have very similar teacher-efficacy beliefs as the tenured professors, with their efficacy scores

falling mid-range on the nine-point scale. There are some possible reasons for this lack of variation.

First, as this was a completely voluntary process, it could be that those instructors and graduate students with lower levels of efficacy self-selected themselves out of the study. Second, the data analyzed here were gathered from graduate students and instructors at a large research university with very high research activity. In such institutions, teaching is often considered secondary to research. As such, it is not the key focus or goal to which the individuals surveyed are striving. The level and expectations for teaching in such institutions may make it acceptable for everyone to do "good enough" in their teaching, as they may see teaching as a secondary role for which such moderation is acceptable. Third, there is some concern with the

interpretation of items on the teacher-efficacy measure in light of the population surveyed. The TSES was created through the use of focus groups with practicing K-12 teachers for the assessment of teachers' levels of efficacy. Consequently, the measure may contain language that is salient and clear to members of the teaching profession but may be unknown or unfamiliar to college instructors in disciplines untrained in pedagogy. That is, the educational cultures in these institutions may have lead to differences in item interpretation, thus masking some of the differences that exist within this sample of instructors.

Alternatively, the finding of similarity in teacher-efficacy beliefs across experience and professional level mirrors, to some degree, the results of Soodak and Podell (1997). Soodak and Podell found that secondary-level teachers were significantly more homogenous in their efficacy beliefs and reported significantly lower efficacy beliefs than elementary-level teachers. One could conclude that the university and high school environments are more similar to each other than to elementary school environments and as such, the development of efficacy beliefs among these teachers could be similar. Soodak and Podell offer possible reasons for this homogeneity at the secondary-level, which should be considered in light of the research presented here. One reason is that the two populations, elementary and secondary, are inherently different, and that individuals within these populations have distinctly different motivations for the selection of their profession (Soodak & Podell). We would suggest that university instructors are yet another distinct population of teachers with another set of distinct motivations for their career choice and reasons for teaching.

A second explanation for the differences in efficacy beliefs by school level offered by Soodak and Podell (1997) deals with differences in the organizational contexts of elementary and secondary schools. These researchers suggested that because secondary schools are organized by departments or teams, the teachers in these schools may experience "greater collegiality, support and professionalism" (p. 220). These higher levels of support may lead to a homogenous sense of efficacy as new teachers enter the school and are socialized within their departments. Universities are also organized by departments, and a sense of collegiality and professionalism are often key goals of the work environment. Thus, through this bond of collegiality, instructors at these levels may develop common expectations for teaching and the ability to teach. Alternatively, this commonality may be less due to collegiality and more due to socialization practices and a lack of pedagogical training. That is, instructors at the college level are "taught" to teach first as undergraduates and then are socialized into common teaching practices as graduate students. These common

practices are then replicated in their own teaching and become the expected method of sharing information with future students. Because they are teaching within particular academic domains and are participating in learning within those domains, they may develop a common understanding of what teaching means in this context, which may in turn lead to a more common belief pattern in their abilities to fulfill this role.

Differences in teacher-efficacy across academic domains and gender. Significant differences in efficacy for instructional practices and overall teaching efficacy were found between participants from the colleges of Behavioral and Social Sciences and Education, with instructors from the College of Education reporting higher levels of efficacy. However, this does not seem particularly surprising, as we would expect that individuals, who have dedicated themselves to the study of education and teaching, would have higher levels of efficacy for teaching and perhaps a better understanding of what the teaching process entails.

The findings of this study replicated the trend that identifies women as having higher levels of efficacy for teaching (Brennan et al., 1996). One explanation of this continued trend could be in the understanding of the role of teacher in society and the socialization practices that allow for women to more closely align themselves with this work.

Differences in collective-efficacy. Our findings indicated no significant differences in collective-efficacy across departments or professional levels. In their assessment of college faculty collective-efficacy, Loup and colleagues (1997) were unable to discern a factor of collective-efficacy with their data. They suggested that the autonomous nature of academic life is such that the need for a sense of collective-efficacy is superfluous and not central to the goals of these professionals. Similarly, the work presented here suggests that, across departments assessed, the collective-efficacy is relatively the same with regard to teaching.

Also, we were curious to explore possible differences in collective-efficacy across professional levels, considering that tenured professors may have a different sense of the teaching community than graduate students or assistant professors. However, these non-significant results suggest that regardless of professional standing, the perception of collective-efficacy within the department is relatively cohesive, as one would hope it to be. The lack of significance with regard to collective-efficacy across professional levels provides evidence that the same degree of collective-efficacy is perceived among and between all members of the departmental communities represented here.

Relationship between teacher-efficacy and collective-efficacy. A significant positive relationship was found between participants' reported levels of

teacher efficacy in all areas except classroom management and collective-efficacy, such that those participants with higher teacher-efficacy perceived themselves to be in departments with higher collective-efficacy. This finding is in concert with the results of Goddard and Goddard (2001) and suggests that these two belief systems can serve to guide in the establishment and maintenance of each other. Further, existence of a relationship between collective and teacher-efficacy provides two avenues for intervention in the improvement of college level instruction.

Limitations

There are a few key limitations to the work presented here that must be addressed. First, this study involved self-report data and participation was voluntary; therefore, the study is limited by the data collected from participants who were interested and willing to participate in the study and share their beliefs about teaching. Another key limitation of this study involves the lack of statistical analysis using hierarchical linear modeling (HLM). HLM would have allowed us to assess the complexity of our nested collective-efficacy and teacher-efficacy data. A final limitation involves the measurement of collective-efficacy for this population. Collective-efficacy was measured using individuals' perceptions of their department's collective *teaching* efficacy (i.e., the teaching ability of the department members). As discussed previously, teaching may not be seen as the most central function in the professional lives of these participants. Therefore, a measure of collective-efficacy that focuses on issues which these individuals must work on together (e.g., research, funding, hiring new faculty, and salaries), may provide a better assessment of the collective-efficacy that does exist among these individuals.

Implications and Future Research

At the onset of our investigation, we were concerned with teaching practices at the college level and sought to gain an understanding of the current efficacy beliefs among preservice and practicing college-level instructors. This introductory study identified some important aspects of college level pre- and practicing instructors' efficacy beliefs that may influence their teaching practice. Our findings highlight implications and directions for future research with this population. Specifically, further examination of efficacy beliefs among college teachers in institutions representing varying expectations for research and teaching and the improvement of self-reflection in college-level instructors are both warranted. Thus, the

findings of this study allowed us to identify several areas for future research.

In this study we focused on the pattern of beliefs among this population. The fact that very similar beliefs emerged across the groups investigated, perhaps tells us more about the role of teaching at the university level than it does about the individual teachers surveyed. The efficacy beliefs reported were neither overly high nor low across participants. In fact, individuals felt moderately confident in their ability to teach undergraduate students. Given the research orientation of the university assessed, one may consider that for this population, teaching is only of moderate importance and does not involve the high stakes associated with teachers in elementary schools. A next crucial step would be to conduct a similar study with a similar sample from a university or college that is known to have teaching as its primary focus. In such environments, there may exist greater variation in efficacy beliefs among the professional levels investigated, given the importance that teaching has in their professional lives.

Further, we feel that these beliefs provide a starting point for a conversation about teaching among this population. That everyone feels the same moderate level of ability to employ instructional practices, engage students in the learning process, and manage the classroom environment, suggests that these respondents may be unaware of teaching practices of other instructors and may lack the knowledge base needed to begin to have genuine reflection on their own practice. Further, beliefs play a central role in any change in action or knowledge (Pajares, 1992). If the ultimate goal is to improve teaching at this level, then it appears that, for these participants, the first step may be to help them recognize their own potential as teachers. Efficacy beliefs are future oriented. They reflect what an individual expects to be able to do. Elevated beliefs can cause individuals to extend beyond their own current abilities to reach a desired level of performance that they consider attainable. Thus, it may be necessary for this population of instructors to engage in discussions in which they can see that there are multiple methods for teaching and that they have the ability to engage in these practices.

Finally, we feel the results of this study speak to the uniqueness of teaching at higher levels of education. Teaching at the college level comes with a sense of autonomy and isolation different from that experienced at elementary or secondary levels. While Bandura (1977, 1997) would say that we judge our efficacy beliefs from our direct and vicarious experiences, the nature of the university makes formulating an internal judgment of one's teaching capability extremely difficult. At the college level, instructors may read each

other's research and compare curriculum vitae, but there are few, if any opportunities to make social comparisons about teaching practice that might serve as a source of efficacy beliefs for teachers. For the most part, feedback from teaching comes only from student evaluations, which may or may not inform an individual's efficacy due to the types of questions asked, the number of students responding, and the nature of the students in that particular course. There are no standardized tests by which to measure teaching abilities and no school assemblies where you can compare the behavior of your students to those in other classes. A college instructor's sense of efficacy for teaching may be based only on his or her practice in comparison with itself.

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