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Teacher Efficacy and Career Indecision among Pre-Service Teachers: A Model of Direct and Indirect Effects

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Abstract

The present study investigates, through path analytic techniques, the influence of teacher efficacy on the career indecision of pre-service teachers. The sample consists of 305 students enrolled in Teacher Education programs at two southeastern universities. Results indicate that general teacher efficacy and career self-efficacy have significant direct effects on career indecision. Career self-efficacy mediates significant indirect effects for both general and personal teacher efficacy.

Teacher Efficacy and Career Indecision among Pre-Service Teachers: A Model of Direct and Indirect Effects

To what degree do the teaching-related personal and professional beliefs held by pre-service teachers impact the career choices they make upon graduation? The No Child Left Behind Act of 2001, which was meant to improve public education, has also created an atmosphere of uncertainty that surrounds school systems across the United States. The long-term implications of such issues as holding teachers accountable for student outcomes (Schrag, 1995), increased demands for new teacher hires to handle burgeoning public school populations (Voltz, 2003), and the specter of teacher attrition (Delgado, 1999), make it imperative that educators involved in the preparation of new teachers gain a better understanding of the emerging professional beliefs of teachers who are preparing to enter the workforce. Toward this end, we propose that empirical measures of teacher efficacy can be combined with measures of career indecision to paint, in broad strokes, a picture of the role that pre-service teachers' beliefs about their ability to "make it" as a classroom teachers play in career decision making. While researchers continue to develop explanatory models of self efficacy, teacher efficacy, and career indecision (Gati, Krausz, & Osipow, 1996; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Gati, Osipow, Krausz, & Saka, 2000) little research has focused on the effects of teacher efficacy beliefs on career indecision among "soon to be" teachers.

Self-efficacy

Self-efficacy as first conceptualized by Albert Bandura (1977) refers to the ability of an individual to create self-perceptions of capability that become integral in motivating and guiding his/her actions. The concept of self-efficacy is theoretically grounded in social cognitive theory particularly as it relates to human agency (Bandura, 2000). The ability to intentionally act upon

the environment and thereby influence a course of events is key to the understanding of personal agency. According to Bandura self-efficacy beliefs reflect the degree to which an individual believes in her/his ability to perform a given task or engage in a given behavior; furthermore, these beliefs can, to a great extent, direct that person's sense of personal agency. Self-efficacy beliefs and the attendant outcome expectations are developed based on past performance, accomplishments, and emotional arousal (Bandura, 1982). Efficacy expectations are personal prompts for the initiation of behavior, the expenditure of effort, and influences persistent in a behavior. This cyclic relationship between beliefs, actions on the environment, and feedback may lead to decisions about whether or not to again engage in some action. This phenomenon is at the root of Bandura's concept of reciprocal determinism: "the view that (a) personal factors in the form of cognition, affect, and biological events, (b) behavior, and (c) environmental influences create interactions that result in a *triadic reciprocality*" (italics in original, Pajares, 1996, p. 544), such that there is a continuous feedback loop that may embolden or modify efficacy beliefs.

Teacher Efficacy

Self-efficacy theory has been applied to virtually every dimension of the educational enterprise. Most notably for our purposes, self-efficacy has recently been applied to teachers and their beliefs about teaching. Indeed Bandura (1993), himself, first proposed that the research community look closely at the construct of teaching efficacy. Tschannen-Moran and Woolfolk Hoy (2001) proposed that teacher self-efficacy be defined as a teacher's "judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (p. 783).

In the spirit of Bandura's own beliefs about the power of self-efficacy, Pajares (1996) notes, "self-efficacy judgments should prove excellent predictors of choice and direction of behavior" (p. 570) but cautions,

> It serves no research agenda to engage in a duel of self-beliefs when deeper understandings of human behavior may be better had by exploring how, why, and under what conditions certain self-perceptions are especially useful and predictive (p. 570).

It appears, then, that self-efficacy applied to teaching (teacher efficacy) should be a particularly useful and predictive construct. Indeed, ten years ago, Guskey and Passaro (1994) reported that teachers' perceived sense of self-efficacy in teaching was being treated as a significant variable in a growing number of educational research studies. For example, teacher efficacy has been found to be related to such variables as classroom management (Ashton & Webb, 1986), the adoption of innovative teaching materials (Guskey, 1988), student achievement (Ashton & Webb, 1986; Gibson & Dembo, 1984; Ross, 1992) and motivation (Midgely, Feldlaufer, & Eccles, 1989; Pintrich & Schunk, 2001). These research findings focus primarily on the impact of teacher efficacy on teaching behaviors and student outcome variables. However, there is a dearth of research investigating the relationship between teacher efficacy and career indecision among pre-service teachers. In an age of teacher shortages, determining how teacher self efficacy impacts the career decision-making of pre-service teachers could be a critical issue for education.

Career Indecision and Career Self-efficacy

The study of career indecision has long been a focal point in the career development literature (Osipow, 1980, 1999; Fassinger, 1990; Gati et. al, 1996; O'Brien & Fassinger, 1993). Interest in career indecision is spurred by researchers, practitioners, and counselors who are

concerned with: (a) how individuals make career choices, and (b) how those same individuals go about implementing those choices. These investigations often involve antecedent and outcome variables associated with career indecision. According to Betz (1992), career self-efficacy includes both the process of making a career decision and the domain content of that career. Judgments of personal efficacy regarding the skills and dispositions involved in a particular career are fundamental to career decision-making.

Among the first to empirically study the relationship between self-efficacy and career indecision, Taylor and Betz (1983) investigated career decision-making self-efficacy and found that students who were more indecisive reported lower levels of confidence in their abilities to perform the necessary tasks associated with career decision-making. Other studies investigating the relationship between career indecision and career self-efficacy produced similar results. Taylor and Popma (1990), Wulff and Steitz (1997), and Wulff (1998) all found career self-efficacy to be significantly and inversely related to career indecision. These studies indicated that higher levels of career self-efficacy were associated with lower levels of career indecision.

Much of the research concerning career development and career indecision has focused on a college-aged population and has investigated how career development and career self-efficacy relate to other variables. For example, the effects of sex role on career development (Millard, Habler, & List, 1984; Gianokas, 1995), gender differences in career development (e.g., Sandberg, Ehrhardt, Ince, & Meyer-Bahlburg, 1991; Wilson, Stocking, &Goldstein, 1994), or racial differences in career development (e.g., Williams, 1987; Ogbu, 1989). There is, though, a lack of literature investigating the relationship of career indecision and career self-efficacy within a particular subset of the college population – those who are being trained for a specific profession. This group of individuals has entered pre-requisite educational programming, so in

essence they have already made a career decision, yet for many of these students, there comes a point in their programs where a new wave of indecision surfaces. Pre-service teacher education majors are an example of just such a population.

Methodology

The present study investigated the career indecision of pre-service teachers. Specifically, the study sought to investigate the direct and indirect influences of the antecedent variables of general teacher efficacy, personal teacher efficacy, and career self-efficacy to that of career indecision. The path model was based on previous research findings that suggested career self-efficacy to have an effect on career indecision as a mediating variable. The order of the variables in the model allows for the investigation of the impact of teacher efficacy on both career self-efficacy and career indecision. The following hypothetical path model was proposed:

Insert Figure 1 Here

It was hypothesized that teacher efficacy, represented individually by general and personal teacher efficacy, as well as career self-efficacy would have direct effects on career indecision with higher levels of efficacy being associated with lower levels of career indecision.

Sample

The sample consisted of 305 students enrolled in teacher education programs at two southeastern universities. The breakdown of the sample by gender consisted of 88 males and 217 females. Two hundred and eight of the students were undergraduates and 97 were graduate students seeking initial certification to teach. All students had completed their undergraduate coursework and were attending a pre-student teaching seminar. Participation in the study was

voluntary. Participants ranged in age from 20-54 years old. The sample was comprised of students enrolled in early childhood education, elementary education, secondary education, and P-12 certification areas. In terms of ethnicity, 82% of the participants were White, 16% were African-American, 1% were Asian, and .66% were Native American. The mean grade point average of the group was 3.30.

Measures

Teacher Efficacy. Teacher efficacy was assessed using 16 items from the Teacher Efficacy Scale (Gibson & Dembo, 1984).These 16 items were found by Gibson and Dembo to reflect two distinct factors: General Teacher Efficacy (GTE) and Personal Teacher Efficacy (PTE). GTE represents a teacher's belief that any teacher's ability to bring about change is limited to external factors not controlled by the teacher. PTE represents a more personal belief that one has the needed skills to bring about student learning. Each factor was used individually in the analyses conducted here. Gibson and Dembo reported internal consistency reliability coefficients of .78 for the PTE factor, and .75 for the GTE factor, and .79 for the total 16 items.

Career self-efficacy. Career self-efficacy was assessed using the Wulff-Steitz Career Self-Efficacy Scale (Wulff & Steitz, 1996). This scale consists of four items that relate directly to a career choice. The items are as follows:

1. Have chosen a specific career.
2. Know the qualifications for a career.
3. Can see yourself in a career.
4. Can see yourself remaining in a career for at least 3 years.

Respondents were asked to rate each item according to how much they believed the quality applied to them. The items were rated on a 4-point Likert scale of strongly disagree to

strongly agree. Scores range from 4 to 16 with higher scores indicating greater career self-efficacy. The test-retest reliability for the items was found to be .85 for a sample of high school students, and the standardized alpha for the four item instrument is .75 (Wulff & Steitz, 1996).

Career indecision. The Career Decision Scale (Osipow, 1980) was used to assess career indecision. The instrument contains 19 items, 2 that measure career certainty, 16 that measure indecision and one free response item. The free response item is used mainly for counseling purposes and was not included in this study. Responses are recorded on a Likert response scale ranging from 1 indicating 'low similarity of respondent to item' to 4 indicating 'high similarity of respondent to item'. Scores on the certainty scale can range from 2 to 8 with higher scores indicating greater certainty. Scores on the indecision scale can range from 16 to 64 with higher scores indicating greater indecision. Osipow, Carney, and Barak (1976) reported test-retest reliabilities for the Indecision Scale to be .82 and .90 using two separate samples of college students.

Analyses

The data were analyzed using path analytic procedures. Path analysis is a multivariate analytical technique that is closely related to multiple regression. As such, it requires that the usual assumptions of regression are met (i.e. linearity of relationships, interval level data). Path analysis allows for the examination of possible causal orderings of variables in a given set of relationships. While it is understood that path analysis deals with correlations of variables and not causation, it is a very useful technique for illuminating which pattern of correlations best fits the data.

The proposed causal model was estimated with ordinary least squares (OLS) analysis procedures using the GEMINI statistical package (Wolfle & Ethington, 1985). In this model

direct causal effects are represented by regression coefficients, either standardized (beta weights) or metric (*b* weights). The indirect effects are estimated by the sums of the products of direct effects through intervening variables in the model. These indirect effects represent the influence on the dependent variable through the direct results of the prior intervening variables in the model. Total effects are represented by the sum of direct and indirect effects. All analyses were conducted using means, standard deviations, and correlations of the variables included in the hypothesized model and are provided in Table 1.

Insert Table 1 About Here

Results

The inverse relationships between general teacher efficacy and career indecision (-.340) and career self-efficacy and career indecision (-.385) are most notable. Personal teacher efficacy revealed only a slight negative correlation with career indecision (-.150) which was an unexpected finding.

The parameter estimates for the equations defining the model of career indecision can be found in Table 2. General and personal teacher efficacy along with career self-efficacy explained 25% of the variance in career indecision, $F(3, 301) = 33.07$, $p < .001$. Career indecision was significantly and directly influenced by both general teacher efficacy (-.309, $p < .01$) and career self-efficacy (-.359, $p < .01$). This negative relationship suggests that the higher the level of

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Insert Table 2 About Here

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general teacher efficacy and career self-efficacy the lower the career indecision. Examination of the relative magnitude of the betas indicates both general teacher efficacy and career self-efficacy equally impact career indecision. Personal teacher efficacy was found to have a direct effect ($p < .01$) on career self-efficacy, indicating the higher the personal teacher efficacy the higher the career self-efficacy.

The summary of these direct effects along with the indirect and total effects of the variables in the model of career indecision can be found in Table 3. Both general and personal

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Insert Table 3 About Here

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teacher efficacy were found to have significant indirect effects on career indecision. These indirect effects were mediated through career self-efficacy. The negative indirect influence of these variables suggests that higher personal and general teacher efficacy are predictive of lower career indecision. This indirect influence appears to be the result of higher personal and general teacher efficacy which very likely leads to higher career self-efficacy, and this in turn reduces career indecision.

Due to the number of participants, particularly the low numbers within the subgroups of gender and ethnicity, statistical investigation of the between-group effects of the model were not conducted.

Discussion

The goal of this study was to investigate the direct and indirect influences of teacher efficacy and career self-efficacy on career indecision in pre-service teachers. The hypothesis that teacher efficacy and career self-efficacy would have direct effects on career indecision was

partially supported. In the final analysis only the general teacher efficacy component of teacher efficacy as well as career self-efficacy were found to have significant direct effects on the career indecision of pre-service teachers.

The lack of a direct relationship between personal teacher efficacy and career indecision was a little surprising. While this appears to indicate that a teacher's personal belief that s/he can bring about student learning has less of an impact on career indecision than general teacher efficacy, there are other possible explanations for this finding. Measurement issues certainly cannot be ignored. Although the TES as developed by Gibson and Dembo is a standard and popular measure, questions have been raised about its conceptual and statistical soundness (Coladarci & Breton, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). The context of teaching and the specificity of tasks also add to the complexity of measuring this construct. Tschannen-Moran and Woolfolk Hoy posit that "many standard efficacy instruments overlook the specific teaching context" (p. 790) and the optimal level of specificity needed for accurate measurement is still being debated.

Another interesting avenue of approach to this relationship concerns level of competence. According to Tschannen-Moran, Woolfolk Hoy, and Hoy (1998), teacher self-efficacy involves *perceived* level of competence rather than an *actual* competence level. Woolfolk Hoy & Spero (2005) note that "people regularly overestimate or underestimate their actual abilities, and these estimations may have consequences for the courses of action they choose to pursue and they effort they exert in those pursuits" (p. 344). It follows then that pre-service teachers who underestimate their ability to handle the multiple tasks and agendas of teaching (i.e. low personal teacher efficacy) might begin to question their career decision. Once again measurement issues arise. Are we accurately measuring perceptions of competence and are those perceptions an

underestimate or overestimate of actual ability? Pre-service teachers expect to enter the teaching profession but if they believe themselves to possess a low level of competence it is quite possible, even probable, that they may experience a new level of indecision about their career choice.

In the area of career development this study adds support to the existing literature as well. The importance of career self-efficacy, as both a direct influence on career indecision and as a mediating variable for indirect effects, clearly coincides with other research findings (e.g., Hackett & Betz, 1981; Taylor & Betz, 1983). Two studies by Wulff and Steitz (1995, 1997) found career self-efficacy to be a strong predictor of career indecision. In fact, in the second study, Wulff and Steitz found that among a number of variables only career self-efficacy had a significant direct influence on career indecision.

While the current findings offer only partial support for the hypothesized model, the proposed path model does provide insight into the relationships between various types of self-efficacy and career decisions and indecision. The fact that the proposed model explained only 25% of the variance is perhaps reflective of the need for better operational definitions of the variables of interest and how the construct of teacher efficacy can best be measured.
As a preliminary model it illuminates the need to further delineate what constitutes personal teacher efficacy and to recognize the importance of context and specificity of tasks when measuring this construct.

The concept of teacher efficacy has proven to be a strong addition to educational research but there is much refinement needed in terms of operational definitions and better instrumentation (e.g., inclusion of context, level of specificity of tasks within domains). It is imperative that this “elusive construct” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783) be

fully understood and accurately represented if research on teacher efficacy is to move forward. While the use of path analytic techniques, as in this study, have helped to clarify the relationship of teacher efficacy to that of other variables, such as career indecision, much is left to investigate. In order to understand the role of teacher efficacy beliefs in pre-service teachers' career indecision there must be a focus on antecedent variables related to teacher efficacy and how these may have differing effects at different times of teacher preparation. In addition, it is important to know what high and low levels of teacher efficacy mean in the context of real classrooms and actual teaching.

Indeed, one of the possible outcomes of the dissemination of these research findings is that fellow researchers will begin to converse about the possibility of developing developmental models of career growth in teachers. Teacher preparation programs would certainly benefit from knowing how the beliefs (both personal and collective) of pre-service teachers impact their professional performance and commitment. This information would help schools of education to provide the academic, personal, and professional support that these "soon to be" teachers need which in turn should reduce the levels of career indecision.

The regional demographics and the lack of differentiation between subgroups of pre-service teachers are limitations of this study. Future research should include larger and more representative samples of teachers from across the country. The specific certification program should be identified for each participant and possible differences in these subgroups of teachers should be explored. Given a large enough data set, it would be interesting to see how the direct and indirect effects of teacher efficacy on career indecision may differ for those in different certification programs, different genders, and different ethnicities.

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Table 1

Correlations, Means, and Standard Deviations

	1	2	3	4
1. General Teacher Efficacy	1.000	.197	.067	-.340
2. Personal Teacher Efficacy	.197	1.000	.156	-.150
3. Career Self-Efficacy	.067	.156	1.000	-.385
4. Career Indecision	-.340	-.150	-.385	1.000
Means	25.750	40.580	18.780	23.170
Standard Deviation	5.180	4.670	1.920	7.090

Table 2

Direct Effects in Model of Career Indecision[a]

	Dependent Variables	
	Career Self-Efficacy	Career Indecision
General Teacher Efficacy	.038 (.014)	-.309** (-.423)
Personal Teacher Efficacy	.150** (.061)	-.033 (-.051)
Career Self-Efficacy		-.359** (-1.326)
R-Square	.026	.248

[a] Metric Coefficients given in parentheses
** $p < .01$

Table 3

Direct, Indirect, and Total Effects on Career Indecision[a]

	Direct	Indirect	Total
General Teacher Efficacy	-.309 (-.423)	-.014** (-.019)	-.323*** (-.441)
Personal Teacher Efficacy	-.033 (-.051)	-.053** (-.081)	-.087 (-.132)
Career Self-Efficacy	-.359 (-1.325)		-.359 (-1.325)

[a] Metric Coefficients given in parentheses
** $p < .01$; *** $p < .001$

Figure Captions

Figure 1. Hypothesized path model.

Figure 2. Path model with coefficients.

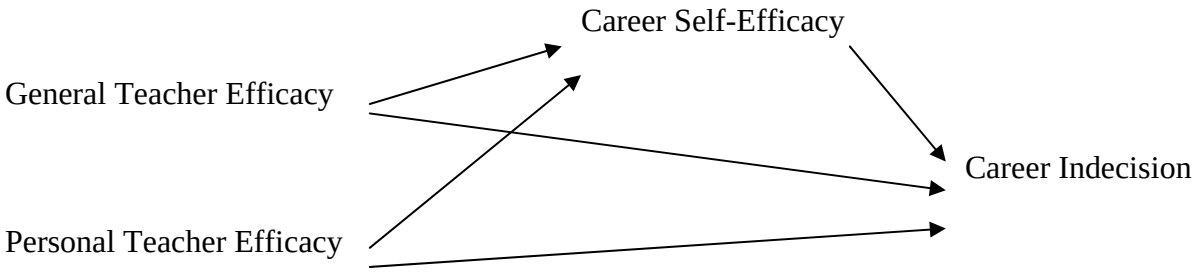
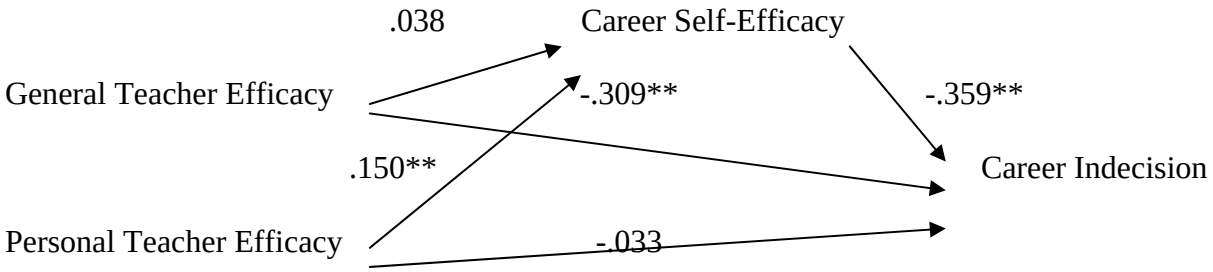

Career Self-Efficacy
General Teacher Efficacy
Career Indecision
Personal Teacher Efficacy

Figure 1


.038
Career Self-Efficacy
General Teacher Efficacy
-.309**
-.359**
.150**
Career Indecision
Personal Teacher Efficacy
-.033

** p < .01

Figure 2