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ABSTRACT

A longitudinal sample of 242 predominantly white teacher candidates was studied to identify possible relationships between the candidates' academic abilities, the degree of their success in making the transition from student to teacher, and their development of concerns about teaching during teacher preparation as hypothesized by Fuller's model of teacher development. Analysis of data collected prior to teacher preparation, near the end of teacher preparation, and 7 years after the commencement of teacher preparation revealed: that pre- to post-preparation changes occurred in the candidates' task, self, and impact concerns; that the level of the candidates' concerns about teaching did not differ when classified by degree of success in making the transition form student to teacher; and that the teachers' academic ability indices interacted statistically with the teacher candidates' development of job, task, self, and/or impact concerns during teacher preparation. The finding of changes in concerns during teacher preparation supported Fuller's model of the development of concerns about teaching; however, the teacher candidates' academic attributes also were found to relate to and interact with the development of concerns about teaching during teacher preparation. These academic ability interactions with the changes in pre- to post-teacher preparation concerns and the failure to identify a direct relationship between concerns development and degree of success in teacher induction would seem to raise questions about the overall viability of the Fuller model. (Contains 33 references). (Author/SM)

Running head: ASSOCIATIONS TEACHER TRANSITION

A Longitudinal Study of Relationships Between Candidates' Abilities, Development of Teaching Concerns, and Success in Entering Teaching

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Abstract

A longitudinal sample of 242 teacher candidates was studied to identify possible relationships between the candidates' academic abilities, the degree of their success in making the transition from students to teachers, and their development of concerns about teaching during teacher preparation as hypothesized by Fuller's model of teacher development. MANOVA and ANOVA procedures completed on data collected prior to teacher preparation, near the end of teacher preparation, and seven years after the commencement of teacher preparation revealed: that pre- to post-preparation changes occurred in the candidates' task, self, and impact concerns; that the level of the candidates' concerns about teaching did not differ when classified by degree of success in making the transition from students to teachers (full-time teachers, part-time teachers, and not teaching); and that the teachers' academic ability indices (ACT and basic academic skills scores, student teaching performance ratings, and university and education grade point averages) interacted statistically with the teacher candidates' development of job, task, self, and/or impact concerns during teacher preparation. The finding of changes in concerns during teacher preparation supported Fuller's model of the development of concerns about teaching; however, the teacher candidates' academic attributes also were found to relate to and to interact with the development of concerns about teaching during teacher preparation. These academic ability interactions with the changes in pre- to post-teacher preparation concerns and the failure to identify a direct relationship between concerns development and degree of success in teacher induction would seem to raise questions about the overall viability of the Fuller model.

A Longitudinal Study of Relationships Between Candidates' Abilities, Development of Teaching Concerns, and Success in Entering Teaching

Educational reform efforts have increased the need for attracting and retaining competent teacher candidates. The current concern about teacher quality is particularly acute as almost the entire present teaching force will retire within approximately 15 years (Ashton, 1996), and as some research evidence indicates, the teaching profession in the past may have been less effective in attracting and retaining talented candidates than have been other professions (e.g., Chapman, 1983; Chapman & Hutcheson, 1982). This research reveals that many capable candidates are lost in college students transferring from teacher preparation programs to other academic programs (Schlechty & Vance, 1981), that many capable candidates do not actually become teachers after teacher preparation, and that many capable candidates becoming teachers leave teaching in early or mid-career (Heyns, 1988; Wilkinson, 1994).

The existing research literature, however, provides sparse information about the individual characteristics of teachers persisting or not persisting through teacher preparation and the early years of classroom teaching, and this research does not indicate whether or not Fuller's model of the development of concerns about teaching (Fuller, 1969; Fuller & Bown, 1975) might further explicate the nature of candidates persisting or not persisting through teacher preparation and the early years of teaching. Fuller's model of teacher development has been recognized as just one of three teacher development models based upon empirical evidence (Kagan, 1992), but presently it is not known whether the successful development of teaching concerns is related to attrition from the profession.

According to Fuller's model of teacher development, teachers progress through three phases of concerns about teaching as they mature (Fuller, 1969). During early teacher development the candidates' focus is centered about concerns of self-survival as a teacher (self-concerns); later concerns are centered upon performing the actual tasks of teaching (task concerns); and in still later development teachers' concerns focus upon having a significant and positive impact upon pupils (impact concerns). Research on this model during teacher preservice (Adams, Hutchinson, & Martray, 1980; Adams & Martray, 1981; Sitter & Lanier, 1982); during teacher inservice (Adams, 1982); and during both preservice and inservice development (Marso & Pigge, 1989; Pigge & Marso, 1990; Reeves & Kazelskis, 1985; Rogan, Borich, & Taylor, 1992) has rather consistently revealed changes in accord with this theoretical model for the self and task concerns but generally not for the impact concerns. The findings from this research have confirmed the hypothesized decrease in self concerns and the increase in task concerns during preservice preparation and the early teaching years but has revealed that impact concerns generally are high and relatively stable during teacher preparation and the early years of teaching contrary to the Fuller model. None of the existing research of the Fuller model, however, directly addresses the potential relationship between candidates' concerns development and the degree of their success in making the tansition from students to teachers. Additionally, many of these studies were limited to cross-sectional samples of teachers, rather than longitudinal samples, which produce a potential developmental-subject mortality confounding threat to the validity of the studies.

Theoretical models have been devised to explain the factors influencing recruitment to and attrition from the teaching profession. For example, Weaver (1983) maintains that an individual's marketability in our society is the foremost influence upon both teacher attrition and recruitment. He points out that teachers with more marketable talents are less likely to be attracted to teaching initially, and, if teaching, they are more likely to be attracted to lucrative employment out of the profession. He further hypothesizes that increased career opportunities subgroups, such as is presently true for talented women and minorities, can have a major detrimental impact upon the quality of the teaching pool. In further reference to changing opportunities for women, Sedlak and Schlossman (1987) stated: "No single subject is more central to the history of the teaching profession than the changing role of women in American society" (p. 123).

In contrast to Weaver's single factor marketability model, Chapman (1983) has developed a multi-factor model to explain teacher recruitment and attrition. Research of this model has revealed that factors such as candidates' personal characteristics, initial commitment to teaching, success in initial teaching experiences, later career commitment and satisfaction, and quality of first employment placement, as well as external employment marketability are associated with entry to and attrition from the teaching profession (Chapman, 1984; Chapman & Green, 1986; Chapman & Hutcheson, 1982; Riehl & Sipple, 1996).

Some more recent longitudinal studies of teacher attrition have indicated, however, that capable individuals once attracted to the field are as likely to persist through teacher training (Marso & Pigge, 1991; Pigge & Marso, 1992) and through their early teaching years (Heyns, 1988) as are their less capable cohorts. Furthermore, and contrary to some early research suggesting that education has been much less effective than other fields in attracting academically competent individuals to the profession (Shields & Daniel, 1982), longitudinal investigations of the academic ability of those individuals actually entering the teaching field, rather than comparing the ability of high school seniors aspiring to become teachers with those high school seniors aspiring to enter other fields, have revealed much more favorable ability comparisons between those becoming teachers and their cohorts entering other fields (Book, Freeman, & Brousseau, 1985; Nelson, 1985). It appears that many less able high school students, many of whom never complete college, are more likely to indicate teaching as a potential occupational field than other fields, and many capable high school students who initially express interest in other fields actually become teachers. For example, Nelson (1985), utilizing data from the National Longitudinal Survey, reported that fewer than 25 percent of this sample of actual teachers had planned to be education majors as seniors in high school, and Lyson and Falk (1984) conducting a similar study reported that 75 percent of the high school seniors who had indicated that they planned to teach were not teaching seven years after their high school graduation.

The present longitudinal study was conducted to determine if teacher candidates' degree of success in the transition from students to teachers and their academic abilities are related to the development of their concerns about teaching during teacher preparation. More specifically, this study was designed to address the following questions: 1) Are changes in levels of concerns about teaching during teacher preparation, as measured by the Teacher Concerns Questionnaire (George, 1978) and as formulated by Fuller's model, related to teacher candidates' degree of success in making the transition from students to teachers? 2) Are indices of candidate academic ability and performance during teacher preparation, such as university and education earned grade point averages, ratings of student teaching performance, and American College Test (ACT) and Comprehensive Test of Basic Skills (CTBS) scores related to their development of concerns during teacher preparation? 3) Do indices of candidate academic ability and the degree of their success in making the transition from students to teachers interact with the development of concerns about teaching during teacher preparation?

Methods and Procedures

The longitudinal sample for this study consisted of 242 teacher candidates who completed the Teacher Concerns Questionnaire and reported the extent of their concern about successfully obtaining a job as a teacher upon orientation to their first required teacher preparation course at a large midwestern teacher preparation university and again following their student teaching practicum. Seven years after the commencement of teacher preparation, multi-strategy follow-up procedures allowed the researchers to classify each of the teacher candidates as to their degree of success in teacher induction as follows: employed as full-time teachers with two or more years of full-time teaching; employed as part-time teachers with less than two years of full-time teaching (e.g., substitute teachers, temporary full-time replacements, etc.); and not teaching but certified as a teacher.

These teacher candidates were predominantly white (98%), female (81%), elementary (57%) and secondary (43%) majors, very certain or almost certain about becoming teachers (88%), from families with teachers in the present or prior generation (60%), children of parents not having four-

year college degrees (67%), from somewhat larger families (46% with three or more siblings), second or later birth order (66%), made up of individuals with some or considerable teaching-like experiences prior to teacher preparation (73%), very confident about becoming unusually good to exceptionally effective future teachers (78%), from rural (33%) or suburban (54%) high schools of small to moderate size (61% in high school graduating classes of 300 or less), and predominantly made up of individuals who had decided to teach during their elementary (24%) or high school years (50%) rather than after high school graduation. And after graduation, they returned to schools similar to those they graduated from to begin their teaching careers.

The teacher candidates also completed the Comprehensive Test of Basic Skills (CTBS) upon the commencement of teacher preparation, and upon graduation American College Test (ACT) scores, university supervisors' ratings of their performance as student teachers, and university and education grade point averages were obtained from the records of the candidates. The Teacher Concerns Questionnaire was developed to facilitate research of Fuller's Model of teaching concerns development. It provides three concerns scores (self, task, and impact) derived from 15 items responded to on a continuum from not concerned '1' to extremely concerned '5'. The task scale assesses their concerns about actually performing teaching tasks, the self scale assesses their concerns about being able to survive as a teacher, and the impact scale assesses their concerns about having a meaningful and positive influence upon pupils. George (1978) reported test-retest reliability for the concerns scales in the 0.70's and alpha internal consistency coefficients ranging from 0.67 to 0.83. He also provided construct validity evidence in the form of significant differences between preservice and inservice teachers' concerns for the self and task scales but not for the impact scale. Additionally, Rogan, Borich, and Taylor (1992) have provided similar further validation of the concerns scales including modest validity evidence for the impact scale.

The jobs concern scale consists of a researcher-constructed single item related to concern about obtaining a teaching position responded to on a five-point continuum from never ('1') to always ('5'). The student teacher performance rating scale consists of six items requiring university supervisors to rate a student teacher's performance relative to all student teachers he/she had supervised over the previous five years in six categories: content presentation, preparation-organization, learning climate, controlling or managing student behavior, professional knowledge and behavior, and classroom fairness-tact-judgment. These six items are responded to on an eight-step scale from lowest '0' to highest '7', yielding a total score range from zero to 42. The CTBS is one of the most frequently used K-14 grades standardized achievement batteries in this country, and it has a focus on reading comprehension, mathematical computations and concepts, and language skills. The ACT was developed by the American College Testing Program, and it is one of the two major college admissions tests which has been used for more than three decades.

The set of four concerns scores, dependent variables, was analyzed using a two-way, mixed model multivariate analysis of variance (MANOVA) design. The classification of teachers within the three previously described categories indicating the degree of their success in making the transition from students to teachers, column or primary independent variable, served as the single between-subjects factor, and the time in teacher preparation (pre- and post-preparation) served as the within-subjects factor, row or second independent variable. Significant multivariate F values ($\alpha = .05$) were followed by three-way, mixed model ANOVA univariate analyses. These univariate analyses included classifications of the teachers' aforementioned characteristics to allow the identification of possible relationships and interactions between time in teacher preparation, degree of success in transition, and the various academic ability and performance measures, third independent variable, for the set of four concerns scores.

The primary statistical analyses (ANOVA) for this study were those related to three-factor "experiments" with repeated measurements on just one of the factors. The "within subjects" component permitted a determination of whether or not the individuals differed significantly over the two points of time in teacher preparation (pre- and post-preparation) with respect to each of the dependent

variables (the four concerns scores). The first "between subjects" component permitted tests of whether the candidates with different degrees of success in the transition from students to teachers (full-time teachers, part-time teachers, and not teaching) differed. Specific classifications which were used for the second "between subjects" analyses were: the university and education grade point averages (approximate high, middle, and low one-thirds) classification; the basic academic skills (CTBS composite scores approximate high and low halves) classification; student teaching performance ratings classification (high, middle, and low approximate one-thirds); and the scholastic aptitude classification (approximate top and bottom one-halves of ACT composite scores). The ANOVA interaction terms permitted determinations as to whether the time in teacher preparation and/or degree of success in making the transition from students to teachers factors and the various between subjects classifications interacted for the four concerns scores.

Results

The MANOVA procedures of interest to the questions of the present paper revealed nonsignificant mean differences within the set of four concerns scores for the overall degree of transition to teaching main effect (e.g., full-time teachers, part-time teachers, and not teaching) with a Wilk's Lambda $F(8,452) = 0.79$, $p = .612$, but a significant mean difference for the time in preparation main effect (e.g., pre- to post-teacher preparation) with a Wilk's Lambda $F(4,226) = 13.79$, $p = .0001$. The transition x time interaction was not significant with a Wilk's Lambda $F(8,452) = 0.62$, $p = .759$. The mixed model three-way ANOVA follow-up procedures as previously described were then used to investigate the time in preparation main effects and potential two-way and three-way statistical interactions involving the time in teacher preparation factor.

As the focus of the present report is upon the relationships between changes in concerns during time in preparation, degree of success in teacher induction, and selected candidate academic ability and performance characteristics (e.g., statistical interactions), just one complete set of three-way ANOVA procedures is reported for illustrative purpose (see Table 1). This was done to conserve space and because, as previously noted, these changes in concerns during teacher preparation have been reported elsewhere (e.g., Marso & Pigge, 1987; Pigge & Marso, 1992; Pigge & Marso, 1990).

Insert Table 1 about here

Success in Transition to Teaching and CTBS Main Effects

The between-subjects, degree of success in the transition from students to teachers, comparisons (full-time teachers, part-time teachers, not teachers), as already noted in reporting the F-values for the MANOVA procedures, revealed nonsignificant mean differences for the self, task, impact, and job concerns scores as shown in Table 1. Relative to the CTBS ability classification, the teacher candidates earning high CTBS scores did not differ significantly from the lower scoring CTBS candidates in reported levels of self, task, and impact concerns, but they did report less concern ($\underline{M} = 3.15$) about getting a teaching job than their lower scoring CTBS cohorts ($\underline{M} = 3.56$) $F(1,227) = 8.92$, $p = .0031$. Also it can be noted in Table 1 that the CTBS classification for both the self ($p = .0989$) and task ($p = .1100$) concerns approached statistical significance. These suggested that the candidates with higher CTBS scores were somewhat less concerned about self-survival as teachers and about performing the task of teaching than were their cohorts with lower CTBS scores.

Teacher Preparation Main Effects

The within-subjects comparisons (pre- and post-preparation scores) revealed significant mean differences for the self concerns $F(1,236) = 9.29$, $p = .0026$, task concerns $F(1,236) = 10.57$, $p = .0013$, and impact concerns $F(1,236) = 9.94$, $p = .0018$, but not for the jobs concerns $F(1,236) = 1.18$, $p = .2784$, as shown

in Table 1. The self concerns and impact concerns of the candidates decreased during teacher preparation; whereas the task concerns increased during preparation, all in accord with the Fuller model. In contrast, teacher preparation did have a significant impact upon the candidates' level of concern about obtaining a teaching job.

The reduction in impact concerns, although consistent with the Fuller model, is not consistent with previous studies which generally have reported no change in teacher candidates' impact concerns during teacher preparation. The present finding of change in impact concerns may be a consequence of having excluded those candidates who did not become certified following teacher preparation which was not, or may not have been, the case in some of the earlier studies of the development of these concerns. This exclusion of those candidates not becoming certified would seem likely in previous studies limited to the preservice years and particularly likely in studies encompassing both the preservice and inservice years wherein cross-sectional sampling procedures were used. Teacher candidates may have dropped out from teacher preparation between the pre-posttest measurement points who may have reported no change or even an increase in impact concerns from pre- to post-preparation. Had these candidates been included in the present sample, it may have lead to nonsignificant findings as had been the case in most previous studies.

Student Teaching Rating, ACT, and GPA Main Effects

The three other statistically significant academic classification main effects identified by the three-way ANOVA procedures involved the ACT, university GPA, and student teaching rating classifications of the novice teachers. Candidates with higher ACT scores ($\underline{M}$ = 3.68) reported higher levels of concerns about getting a teaching job than did those with lower ($\underline{M}$ = 3.29) ACT scores, $F(1,147) = 5.97$, $p = .0157$. In apparent contrast, candidates earning highest university GPAs, (means of 3.09, 3.39, and 3.70, respectively), $F(2,186) = 5.29$, $p = .0058$, like the low scoring CTBS candidates (see Table 1), reported lower levels of concerns about getting a teaching job than did those earning mid or low university grade average candidates.

The students with highest student teaching performance ratings reported the lowest level of self concerns ($\underline{M}$ = 15.15), the students with lowest student teaching ratings reported the next lowest ($\underline{M}$ = 16.04), and the middle range students reported the highest level of self concerns ($\underline{M}$ = 16.46), $F(2,223)$ 3.83, $p = .0232$. None of the main effect comparisons for the education GPA classification were statistically significant, nor were any of the ACT and university GPA classification main effect comparisons statistically significant for the task and impact concerns. Why the ACT relationship with job concerns should exist while such a relationship was not found for the CTBS and university GPA classifications is unknown; however, other researchers also have noted a discrepancy between measured aptitudes and actual candidate performance indices and relationships with teacher behaviors or characteristics (Heyns, 1988).

Time in Preparation x ACT Interaction

The three-way ANOVA procedures resulted in the identification of four statistically significant two-way interactions involving the time in preparation factor and the academic ability classifications for the set of four dependent variables. In addition, a single significant three-way time in preparation x degree of transition success x academic ability interaction was identified. As the major focus of this paper is upon these interactions between the development of concerns during teacher preparation, academic abilities, and success in the transition from students to teachers each of these interactions will be discussed and presented graphically.

The time in preparation x ACT interaction occurred with the self concerns scores, $F(1,150) = 4.08$, $p = .0451$. The higher ACT scores candidates reported much higher levels of self-survival as a teacher concerns than did their less able cohorts upon commencement of preparation, but upon completion of teacher preparation their reported levels of self concerns were almost identical to those

of their less able cohorts (see Figure 1). The higher scoring ACT candidates accounted for almost all of the reduction in concerns about self during teacher preparation as the lower ACT candidates reported little or no change in self concerns during preparation. A reduction in self concerns during teacher preparation is predicted in the Fuller model; thus the high ACT candidates, but not the low ACT candidates, changed in accord with stated theory. The overall ACT classification main effects were not significant for the self, task, and impact concerns.

Insert Figure 1 about here

Time in Preparation x CTBS Interaction

The time in preparation x CTBS interaction was statistically significant for the task concerns scores $F(1,236) = 5.47$, $p = .0202$. The candidates with high CTBS scores reported much lower levels of task concerns upon commencement of teacher preparation than those candidates with low CTBS scores, but both groups reported nearly identical high levels of task concerns upon completion of teacher preparation (see Figure 2). In other words, the high CTBS candidates reported low pre-preparation but dramatically higher concerns about the task of teaching upon completion of teacher preparation; whereas the low CTBS scores candidates changed little or not at all from pre- to post-teacher preparation. An increase in task concerns as candidates learn the complex nature of the teaching-learning task is predicted by the Fuller model; thus the high CTBS, but not the low CTBS candidates, changed in accord with the stated theory. As previously noted, the CTBS main effect mean differences for the task, self, and impact concerns were not statistically significant, although the difference approached significance for the task concerns for which this interaction was present (see Table 1).

Insert Figure 2 about here

Time in Preparation x GPA Interactions

The third and fourth two-way interactions involved the education and university GPA classifications. The time in preparation x education GPA interaction $F(2,187) = 3.32$, $p = .0383$ indicated that the high, mid, and low education GPA candidates reported rather similar levels of concerns about getting a teaching job upon commencement of teacher preparation, but the mid level GPA group reported much higher levels of post-preparation concerns about getting a teaching job than did their low and high GPA cohort groups upon completion of teacher preparation (see Figure 3). Both upon commencement and upon completion of teacher preparation, the high education GPA candidates reported the lowest levels of concern about obtaining a teaching job as compared to their counterparts. It appears that during teacher preparation the mid level education GPA teacher candidates developed the perception that they likely would have difficulty obtaining a teaching job; whereas their two cohort groups changed little or not at all during preparation relative to their concerns about getting a teaching job. The education GPA main effect differences for the four concerns scores were not statistically significant.

Insert Figure 3 about here

The time x university GPA interaction $F(2,194) = 4.11$, $p = .0178$ indicated that the candidates with high university GPAs maintained a relatively high and stable level of concerns about their impact upon pupils from pre- to post-preparation; whereas the candidates with low university GPAs reported the highest pre-preparation level of impact concerns but sharply reduced post-preparation

impact concerns (see Figure 4). The mid GPA group reported a modest reduction in impact concerns from pre-preparation to post-preparation concerns and the lowest levels of impact concerns at both of these times in teacher preparation. Theoretically, one would likely value beginning teachers with high levels of concern about having a meaningful and positive impact upon pupils. In that case, those with highest university grades would seem to be the candidates most desirable for the profession. The Fuller model hypothesizes little or no change in impact concerns until after the task and self concerns are addressed; thus the higher ability candidates' development of self, task, and impact concerns appeared to be more in accord with theory than that of their less able cohorts (see Figures 1, 2, and 4). The university GPA main effects were not statistically significant for any of the four concerns scores.

Insert Figure 4 about here

Time in Preparation x Transition Success x Student Teaching Ratings

The time x transition x student teaching rating interaction was statistically significant for the impact concerns scores, $F(4,223) = 3.28$, $p = .0122$. Like most three-way interactions, this interaction is not clearly interpretable; however, the general pattern of means for this interaction does reflect the main effect of somewhat lower impact concerns near the end of teacher preparation for all the candidates as can be seen in Figure 5. Secondly, the teacher candidates with lowest student teaching ratings who became full-time teachers reported the highest levels of pretest impact concerns, and the teacher candidates with the highest student teaching ratings who were teaching part-time reported the lowest pretest impact concerns. And, diversity in reported levels of impact concerns was somewhat greater within the not teaching groups as compared to the two teaching groups. Neither the success in transition nor the student teacher ratings main effect mean differences for the four concerns scores were statistically significant.

Insert Figure 5 about here

Transition x CTBS Interaction

The transition x CTBS interaction for the self concerns was statistically significant as shown in Table 1 with $F(1,236) = 3.26$, $p = .0402$. The most evident cause of this interaction appears to be a large difference between the levels of self concerns reported during teacher preparation by the high and low CTBS candidates who became full-time teachers. The full-time teachers with high CTBS scores reported much higher levels of self concerns than had their cohorts with low CTBS scores (see Figure 6). In contrast, the candidates with high and low CTBS scores who became part-time teachers and who did not teach reported quite similar levels of self concerns during teacher preparation. Neither the data from the present study nor the Fuller theory suggests an explanation for this interaction. The CTBS main effect differences for the self, task, and impact concerns were not statistically significant (see Table 1).

Insert Figure 6 about here

Summary and Brief Interpretations

The mixed model MANOVA and ANOVA procedures completed on the measures of the teacher candidates' three types of concerns about teaching and their concern about obtaining a teaching position revealed nonsignificant differences for the candidates when grouped by their degree of success in

making the transition from students to teachers (full-time teachers, part-time teachers, and those not teaching), significant pre- and post-teacher preparation mean differences for the task, self, and impact concerns, and several significant differences when the candidates were grouped by various ability indices. Additionally, and more central to the focus of the present paper, several signficant interactions involving the time in teacher preparation factor and the academic ability classifications were identified for the various concerns scores.

The time in teacher preparation main effects revealed pre- to post-preparation decreases in levels of concerns about self-survival as teachers and concerns about teacher impact upon pupils, an increase in concerns about the task of teaching, and no change in concerns about getting jobs as teachers as the candidates progressed through teacher preparation. The candidate academic ability classification main effect comparisons revealed differences for four of the five academic ability indices. These ability classification main effects revealed lower levels of concerns about obtaining a teaching job for candidates with higher university grade point averages and with higher CTBS scores compared to their cohorts with lower university grades and lower CTBS scores. These main effects also revealed higher levels of concerns about getting a teaching job for the higher ACT candidates as compared to the candidates with lower ACT scores. Just the student teaching performance rating classification resulted in a significant difference for the three concerns in the Fuller model, and this difference was limited to the self concerns of the teacher candidates. Namely, the students with the highest student teaching performance ratings reported the lowest levels of self concerns, and the student teachers with the intermediate ratings reported the highest levels of self concerns.

Four time in preparation x academic ability classification interactions were identified which suggested that: 1) The decrease in reported self-concerns during teacher preparation was by far greater for candidates with high rather than low ACT scores (see Figure 1). 2) The increase in task concerns during teacher preparation was most evident for candidates with high rather than low CTBS scores (see Figure 2). 3) The nonsignificant main effect change in concerns about getting a teaching job overshadowed a rather dramatic increase in concerns about obtaining a job by the candidates who earned intermediate level education grade point averages (see Figure 3) as compared to their cohorts within the top and bottom one-third education GPA ranges. 4) The main effect decrease in impact concerns during teacher preparation occurred primarily for those candidates who earned the highest university grade point averages as compared to those earning mid or low university grades (see Figure 4). Those candidates with highest student teaching performance ratings changed little in their impact concerns during teacher preparation with the exception of the candidates not becoming teachers who reported a sharp reduction in impact concerns following student teaching (Perhaps due to having already decided not to teach.).

Two interactions for the impact and self concerns scores were identified involving the success in transition from students to teachers factor. A transition x time x student teaching ratings interaction indicated that candidates who later became full-time teachers who were rated lowest as student teachers reported very high pre-preparation impact upon pupil concerns but levels comparable to their part-time teacher or not teaching cohorts following teacher preparation. Conversely, the candidates with highest student teaching performance ratings who did not teach reported relatively comparable pre-preparation impact concerns but very low impact concerns following teacher preparation as compared to their teaching cohorts. A success in transition x CTBS interaction indicated that the full-time teachers differed more in the extent of their self concerns during teacher preparation than did either those candidates who became part-time teachers or those who did not teach.

The concerns about teaching for some academic ability groups in the present sample of teacher candidates changed dramatically during teacher preparation while those in other ability groups changed little or not at all. This finding is consistent with the views of Kagan (1992) and Tabachnich and Zerchner (1984) who argue that teacher development is impacted by individual characteristics as well as their experiences in teacher preparation. But, at the same time, this finding could be viewed as reducing the predictive power of the Fuller model. The Fuller model, however, does hypothesize that,

for teacher preparation to be most effective, the preparation program must address the concerns of individual teacher candidates (Fuller & Bown, 1975). In light of this hypothesis, the present findings might suggest that very divergent teacher preparation experiences must be available to address the divergent academic abilities of teacher candidates. Secondly, it could be hypothesized from the present findings that the teacher preparation experiences at this particular university did not meet the needs of many of the candidates, for the development of concerns about teaching for many of these teacher candidates did not occur in a manner consistent with the Fuller model.

Of further note, the current findings provide two suggestions as to why prior research of the Fuller model generally has failed to reveal changes in the development of teachers' concerns about their impact upon pupils. It may be that only when teacher candidates who fail to become certified as teachers are not present in the sample studied, as was the case for the present study, does the predicted decline in concerns about impact upon pupils occur between pre- and post-preparation. A second feasible alternate interpretation is that any decline in impact concerns during the teacher preparation period occurs primarily just for less able candidates as was true for the low one-third university GPA candidates in the present study. The prediction of the Fuller model is that impact concerns can not be fully addressed by the individual until his/her self and task concerns have been largely resolved. This suggests that the reduction in impact concerns might be expected to occur after teacher preparation, at least for some teacher candidates.

In summation, it appears from the present findings that teacher preparation has a more dramatic impact upon some teacher candidates than upon others, at least relative to development of concerns about teaching. The identification of several time in preparation x academic ability interactions for the four concerns scores in the present study suggests that changes in some candidates' levels of concerns about teaching during teacher preparation follow the Fuller model, but the changes in the concerns of other candidates during teacher preparation appear to not follow or even appear to be contrary to the direction of changes hypothesized in the Fuller model. Rather specifically, the theorized development of self, task, and impact concerns of the candidates in the present study interacted with their academic abilities. And last, the development of concerns about teaching during teacher preparation was not found to be related to the candidates' degree of success in making the transition from students to teachers. This latter finding could be considered particularly damaging to the practical value of the Fuller model if one interprets this to mean that there is not a link between the development of concerns about teaching and teacher candidates' success or failure in becoming a teacher. Although perhaps disappointing, one should not assume that this failure to identify a relationship between degree of successful transition into the teaching profession and the development of teaching concerns necessarily negates the existence of relationships between concerns about teaching and teacher classroom effectiveness. The existence of a link between the development of concerns about teaching and actual classroom teaching effectiveness might be the most appropriate next direction for research of the Fuller model.

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Table 1

Univariate 3 x 2 x 2 Repeated Measures Mixed Model ANOVA of Pre- and Post-Preparation Teaching Concerns Scores with Comprehensive Test of Basic Skills and Degree of Transition from Students to Teachers Classifications

A. Between Subjects Comparisons

	Overall Means: Transition Success					CTBS Scores				Transition x CTBS	
Concerns (Ns)	Part-Time (68)	Full-Time (92)	Not Tchng (82)	F	p	Hi (119)	Lo (123)	F	p	F	p
Self	15.40	16.30	15.66	1.41	.2459	15.39	16.26	2.74	.0989	3.26	.0402
(SDs)	(4.27)	(4.31)	(4.25)			(4.21)	(4.30)				
Task	12.55	12.42	12.39	0.08	.9221	12.08	12.80	2.57	.1100	2.09	.1258
(SDs)	(3.95)	(3.67)	(3.86)			(3.82)	(3.74)				
Impact	17.60	18.56	17.91	1.26	.2850	17.92	18.21	0.26	.6105	0.70	.4967
(SDs)	(4.75)	(4.59)	(4.87)			(4.80)	(4.68)				
Job	3.27	3.44	3.37	0.54	.5861	3.15	3.56	8.92	.0031	1.75	.1753
(SDs)	(1.15)	(1.16)	(1.28)			(1.21)	(1.16)				

B. Within Subjects Comparisons

	Overall Means: Preparation Time				Time x Transition		Time x CTBS		Time x Transition x CTBS	
Concerns (Ns)	Pretest (242)	Posttest (242)	F	p	F	p	F	p	F	p
Self	16.33	15.32	9.29	.0026	0.02	.9793	3.12	.0788	1.13	.3252
(SDs)	(4.03)	(4.48)								
Task	11.95	12.93	10.57	.0013	0.52	.5976	5.47	.0202	0.09	.9145
(SDs)	(3.61)	(3.96)								
Impact	18.59	17.54	9.94	.0018	0.58	.5592	0.11	.7369	0.08	.9218
(SDs)	(4.50)	(4.98)								
Job	3.30	3.41	1.18	.2784	0.53	.5919	0.18	.6694	0.47	.6249
(SDs)	(1.09)	(1.27)								

Figure 1

Time in Preparation x ACT Interaction

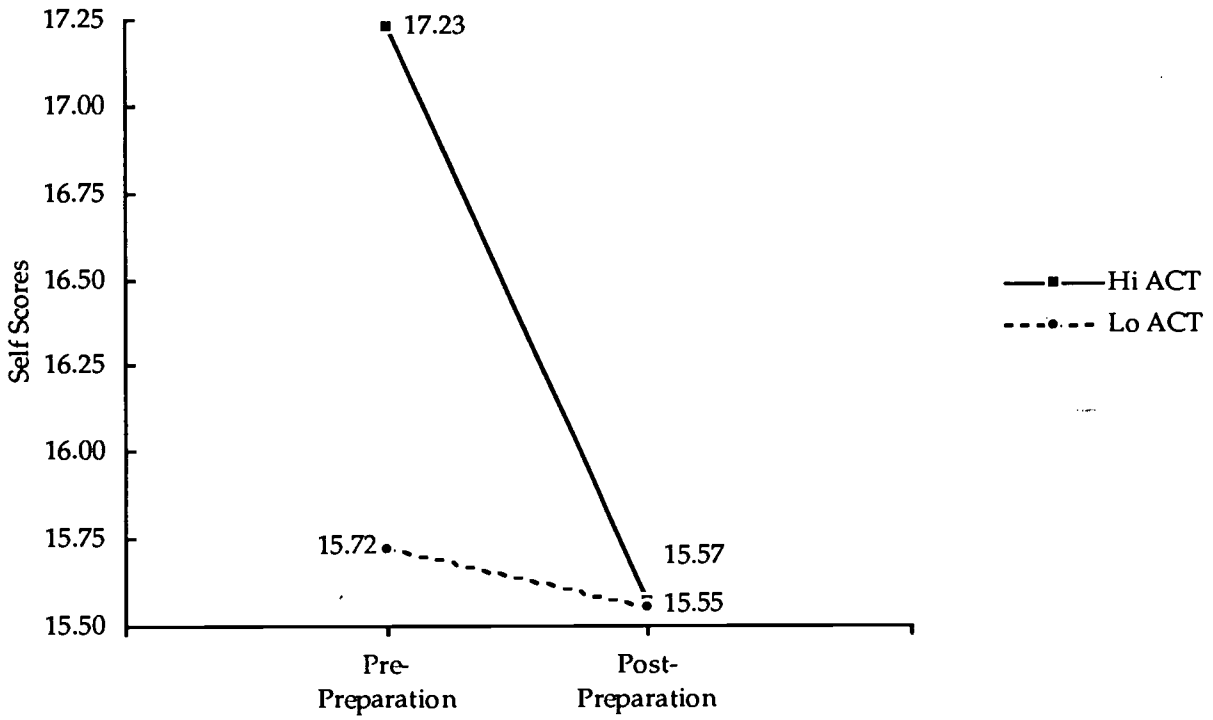


Figure 2

Time in Preparation x CTBS Interaction

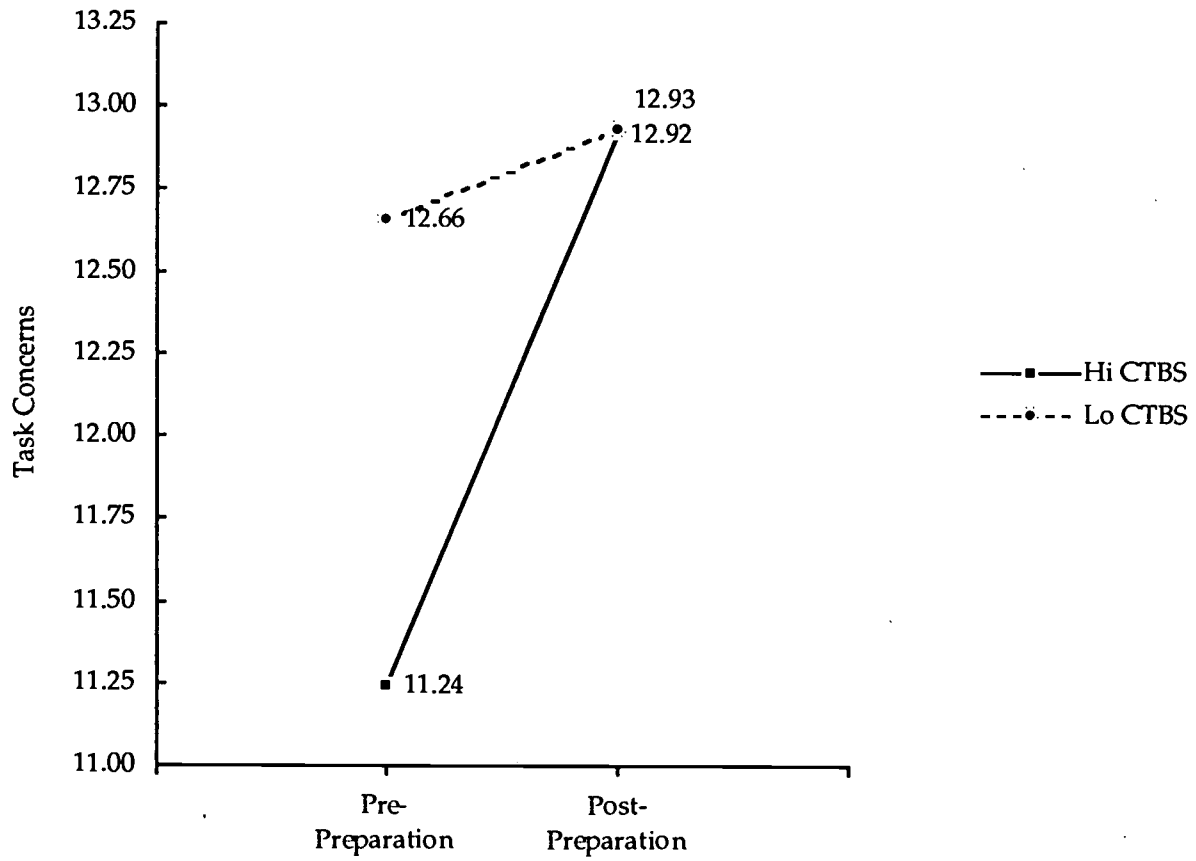


Figure 3

Time in Preparation x Education GPA Interaction

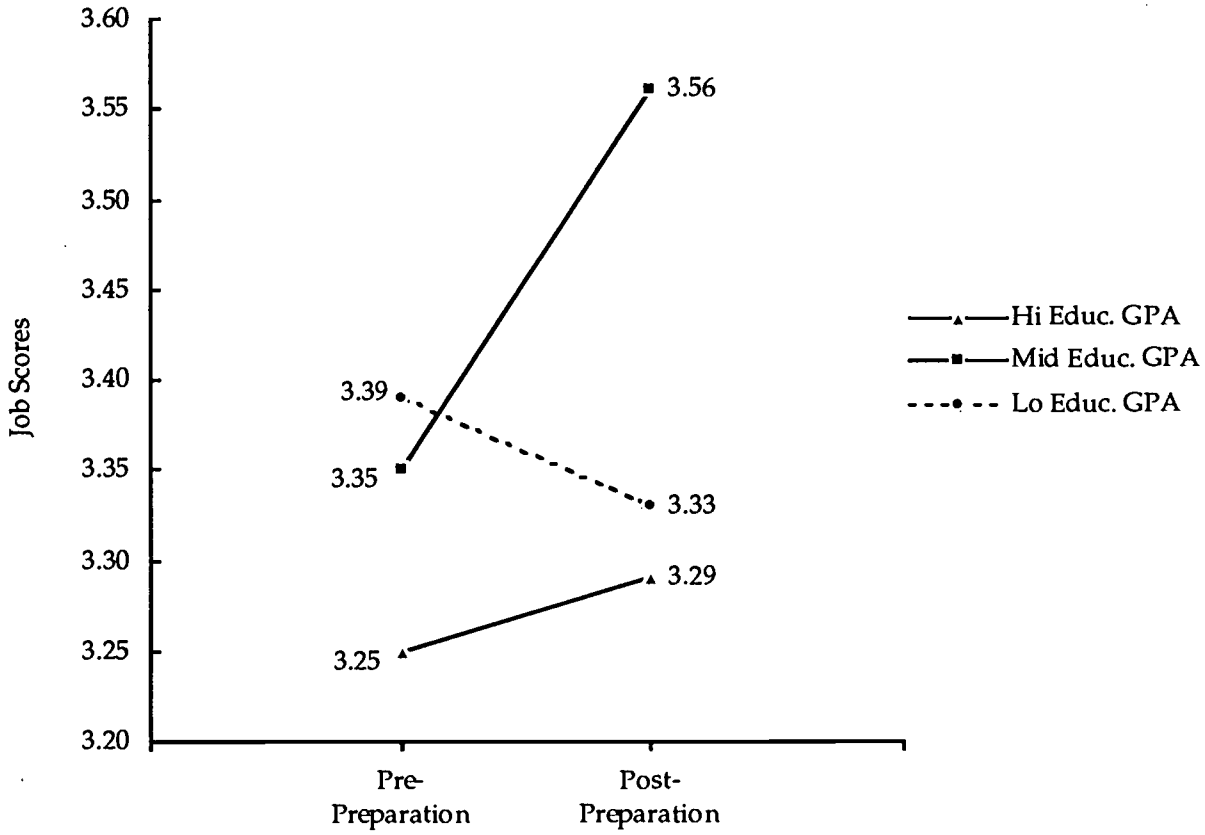


Figure 4

Time in Preparation x University GPA Interaction

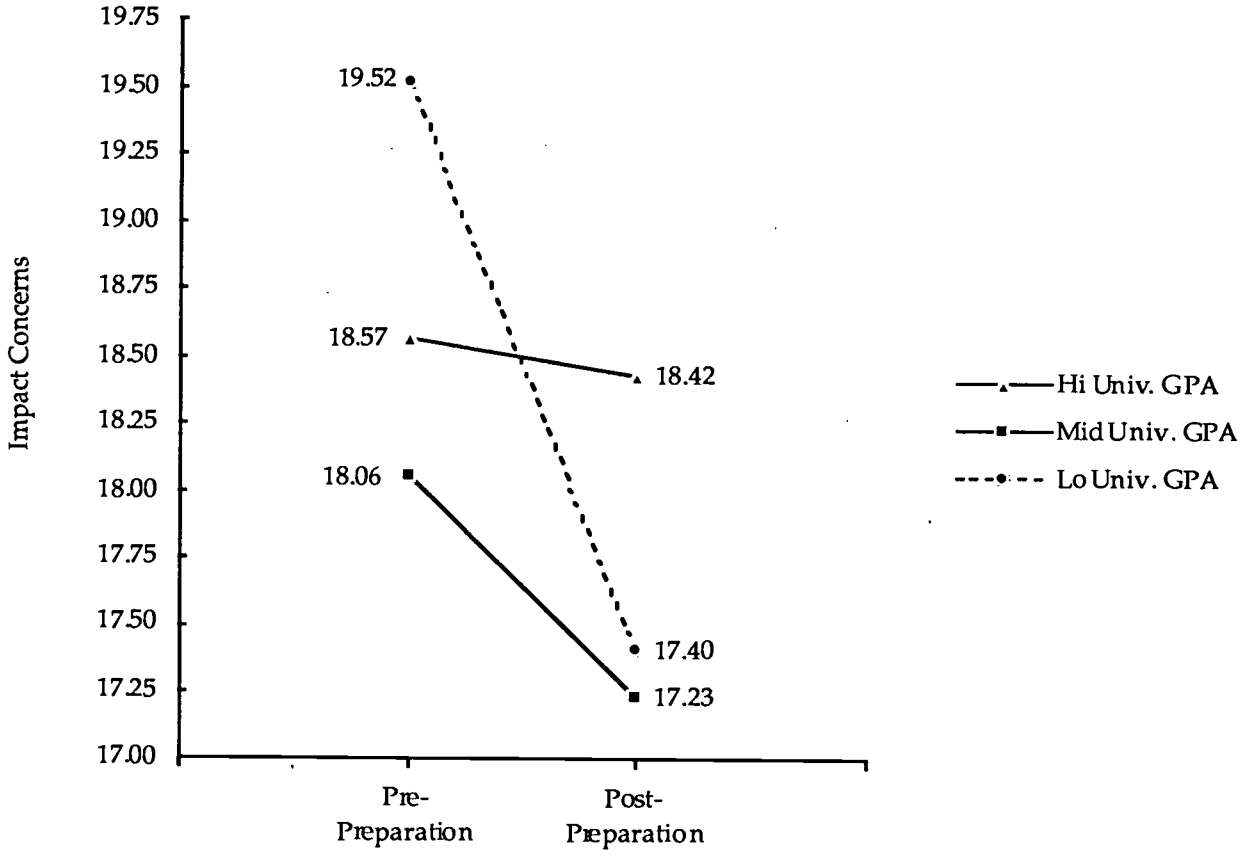
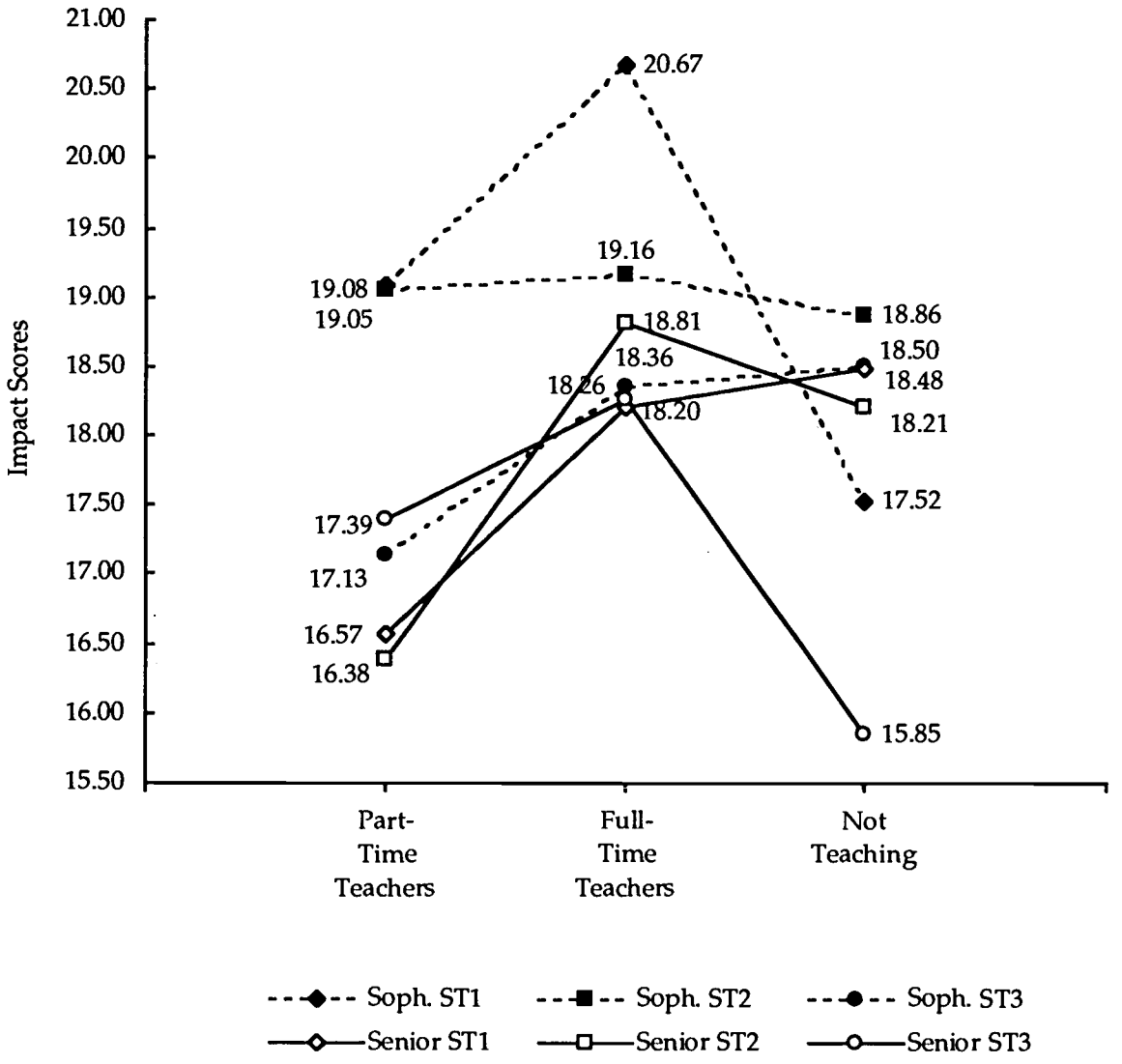


Figure 5

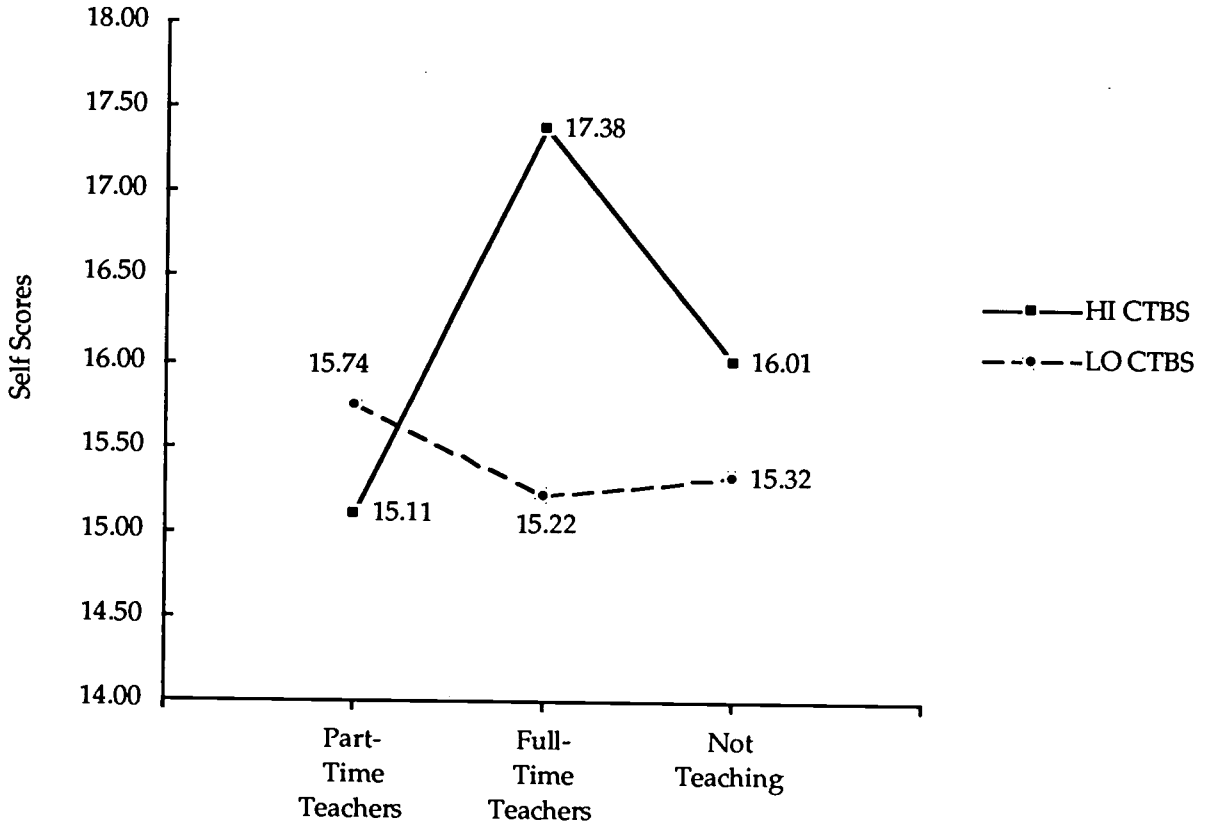
Time in Preparation x Success in Transition x Student Teaching Ratings



ST1	Student Teaching 1	Lo Ratings
ST2	Student Teaching 2	Mid Ratings
ST3	Student Teaching 3	Hi Ratings

Figure 6

Success in Transition x CTBS Interaction



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