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ABSTRACT

In an effort to provide a better understanding of the possible impact of teacher training upon aspiring teachers, this study was designed to ascertain whether prospective teachers' longitudinal changes in attitude, anxiety, and confidence about teaching were related to, or possibly influenced by, their locus-of-control orientation, personality type, gender, teaching field, anticipated grade level of instruction, and the level of their basic academic skills. The subjects were all students who had entered the teacher preparation program at Bowling Green State University (Ohio) in 1985 and completed their student teaching experience by spring 1988 (N=152). It was found that the prospective teachers expressed less anxiety about teaching and more confidence about their decision to teach after their training than they had expressed at the beginning of their training, a finding to be expected from teacher development theory, and that teacher candidates maintained a highly positive attitude about teaching during training. The instruments used for the study were the Attitude toward Teaching as a Career Scale, the Teaching Anxiety Scale, a confidence about teaching scale constructed by the researchers, Rotter's Internal-External Locus of Control, the Myers-Briggs Personal Preference Type Indicator, the Comprehensive Test of Basic Skills, and a demographic data sheet requesting gender, academic major, and anticipated grade level of instruction. (JD)

The Influence of Personality Type, Locus of Control, and Personal Attributes upon Changes in Anxiety, Attitude, and Confidence of Prospective Teachers During Training

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Abstract

In an effort to provide a better understanding of the possible impact of teacher training upon aspiring teachers, this study was designed to ascertain the relationships, if any, between longitudinal changes in attitude, anxiety, and confidence about teaching and selected personality, academic, and personal characteristics of approximately 150 prospective teachers as they progressed through teacher training. It was found that the prospective teachers expressed less anxiety about teaching and more confidence about their decision to teach after when compared to their status before training; this was expected from teacher development theory. It was also determined that the teacher candidates maintained a highly positive attitude about teaching during training. Additionally, several instances occurred where the aspiring teachers' classifications derived from the Rotter's locus of control, Myers-Briggs personal preference types, the Comprehensive Test of Basic Skills, gender, academic major, and anticipated grade level of instruction affected or were related to significant status comparisons and/or significant longitudinal changes in one or more of the three affective measures.

between teachers' personality type as measured by the Myers-Briggs Type Indicator and the nature of teachers' classroom control.

The purpose of the present study was to determine whether selected personality and personal attributes affected or were related to the changes in the affective characteristics of individuals progressing through teacher training; it was anticipated that the findings from this study would add insight to the current research findings related to the impact of preservice training upon prospective teachers. More specifically, this study was designed to ascertain whether the longitudinal changes in attitude, anxiety, and confidence about teaching of prospective teachers progressing through training were related or possibly influenced by their locus of control orientation, personality type, gender, teaching field, anticipated grade level of instruction, and the level of their basic academic skills.

To provide further direction for this investigation two general null hypotheses were stated. One, there will be no differences among the various classifications of the attributes nor will changes in prospective teachers' attitude, anxiety, and confidence about teaching during teacher training be related to the following personal and academic attributes: a) gender, b) teaching field of specialization, c) anticipated grade level of instruction, and d) the level of their basic academic skills as assessed at the beginning of teacher training. Two, there will be no mean dependent variable differences between the personal orientation characteristics classifications nor will changes in prospective teachers' attitude, anxiety, and confidence about teaching during teacher training be related to their following personal orientation characteristics: a) locus of control and b) personality type.

Method

The subjects of this investigation were composed of all students entering the teacher preparation program at Bowling Green State University during the calendar year 1985 and who had completed their student teaching experience by the spring semester of 1988. This sample consisted of 152 prospective teachers of whom 1[illegible] were female and of whom 58 anticipated teaching at the secondary level and 74 at the elementary grade level. These aspiring teachers were predominantly from small to medium-size high schools (high school classes of 500 or less), from rural and suburban communities (80%), from families with at least one near relative a teacher (55%), from families with well over one-half of their mothers or fathers not having a four-year college degree, and from somewhat larger families (over 60% having two or more siblings).

Each of the subjects had completed upon his/her entrance to teacher training and again upon the completion of the student teaching practicum the following instruments: The Attitude Toward Teaching As A Career Scale (Merwin & DiVesta, 1959); The Teaching Anxiety Scale (Parsons, 1973); a confidence about teaching scale constructed by the researchers; and a demographic data sheet requesting gender, anticipated grade level of instruction, and area of academic specialization. In addition, each subject completed the Comprehensive Test of Basic Skills at the beginning of his/her teacher training program and the Myers-Briggs Type Indicator (Myers & McCaulley, 1985) and Rotter's Internal-External Locus of Control (Rotter, 1966) just prior to the commencement of the student teaching experience.

The attitude scale contains 11 attitudinal statements about teaching as a career each of which is responded to on a scale from strongly disagree (1) to strongly agree (6) where the higher scores indicate a more positive attitude. The anxiety scale is comprised of 29 items addressing feelings about various events associated with teaching with a response continuum for each item from never (1) to always (5) with higher scores indicating more anxiety toward teaching as a career. The confidence about teaching scale consisted of these two items: "assurance of becoming a teacher" responded to on a five-point scale from very certain (1) to very doubtful about actually teaching (5), and "anticipated effectiveness as a teacher" responded to on a seven-point scale from not effective at all (1) to truly exceptional (7).

A series of dependent t tests and two-way repeated measures ANOVAs were used to analyze the collected data. The two measurement times during teacher training (upon the commencement of training and upon completion of student teaching) formed the ANOVA column headings (independent variable); the personal, academic, and personal preference orientation categories (gender, teaching field specialization, locus of control, personality type, etc.) were used as the ANOVA row headings (series of second independent variables); and the attitude, anxiety, and confidence about teaching pretest and posttest scores comprised the dependent variables. Scheffe post-hoc tests (alpha = .10) were used where appropriate to ferret out pairwise mean differences.

The specific ANOVA row classifications for the independent variable other than teaching level and gender were as follows: a) Rotter scores were classified as top one-third: externally controlled, middle one-third or average, and those with bottom one-third of the scores for the sample of prospective teachers were classified as internally controlled; b) Myers-Briggs' four dichotomous personal orientation types: extroversion or introversion, sensing or intuitive, thinking or feeling, and judging or perceptive; c) basic academic skills: the composite scores on the Comprehensive Test of Basic Skills were used to classify the prospective teachers into approximate top, middle, and bottom one-thirds; d) teaching field of specialization: elementary, secondary, special education, and special areas (art, music, etc.); and e) anticipated grade level of instruction: elementary and secondary.

Findings

Affective Changes During Training

Dependent t-test comparisons of the means derived from the affective criterion measures administered to the longitudinal sample of prospective teachers upon the commencement of teacher training and again upon completion of student teaching were used to identify any overall affective changes during teacher training. These analysis procedures resulted in the identification of significant mean changes in the prospective teachers' anxiety about teaching and confidence about teaching as they progressed through teacher training; however, the aspiring teachers' average attitude toward teaching as a career did not change during training. The pattern of change for each of the three affective measures completed at the two points during teacher training appears to be in a desirable and predictable direction as shown in Table 1. (Note: The authors chose to use the dependent t's rather than the column F's from one or more of the two-way ANOVAs to summarize whole group changes. Comparing the Table 1 p values with p values from the not presented column F ratios would lead one to

conclude that the t's proved to be somewhat conservative but that the same general findings were evidenced by both sets of analyses.)

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Insert Table 1 about here
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The anxiety scale analysis also revealed a significant mean change for the prospective teachers between their two points in training; the anxiety about teaching expressed by these students declined significantly (pretest $\bar{X}$ = 71.21, posttest $\bar{X}$ = 63.69; $t = 8.01$, $p < .001$). In contrast, the prospective teachers' attitude toward teaching was stable and highly positive over the two measurement points during training (pretest $\bar{X}$ = 51.28, posttest $\bar{X}$ = 51.62).

The two confidence measures revealed that the prospective teachers increased their confidence about teaching between the prior to training and following student teaching points in time; however, only the assurance of the decision to teach scale revealed a mean change sufficiently large to be statistically significant (pretest $\bar{X}$ = 1.68, posttest $\bar{X}$ = 1.46; $t = 2.93$, $p = .004$).

Analysis Using Personal Attributes of the Aspiring Teachers

When the four affective criterion scores were examined within two-way ANOVA models with personal characteristics used as row classifications and the two measurement times during teacher training used as the column categories, significant mean differences were identified for the gender, field of specialization, anticipated grade level of instruction, and basic academic skills classifications of the prospective teachers (see Tables 2, 3, 4, and 5). These findings led to the rejection of the first hypothesis.

Gender. The gender classification was not found to be significantly related at p values of .05 or less to any of the four affective criterion measures. A near significant gender ($p = .06$) and time in training interaction was revealed, however, suggesting that males tended to rate themselves as becoming less effective future teachers after as compared to prior to training (pretest $\bar{X}$ = 5.33, posttest $\bar{X}$ = 5.08); whereas the females rated themselves as becoming more effective future teachers (pretest $\bar{X}$ = 5.22, posttest $\bar{X}$ = 5.43) at the later point as compared to the earlier point in training ($F = 3.63$, $p = .06$) as shown on Table 2.

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Insert Table 2 about here
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Teaching Field. The field of specialization classification was found to be related to the attitude, anxiety, and both confidence about teaching measures. The elementary majors reported a more positive attitude about teaching ($\bar{X}$ = 52.90) than did the secondary ($\bar{X}$ = 50.34) and special education majors ($\bar{X}$ = 48.80); whereas the average attitude mean of the special area majors ($\bar{X}$ = 50.88) did not differ significantly when compared with the means of the other three fields of specialization ($F = 3.60$, $p = .02$).

The average anxiety (average of pretest and posttest) means for the prospective teachers' fields of specialization did not differ significantly one from the other; however, an interaction between field of specialization and the time in training for the anxiety measure was identified. This interaction revealed that anxiety about teaching was markedly reduced between the pretest and posttest points in time for the elementary majors (pretest $\bar{X}$ = 71.90, posttest $\bar{X}$ = 61.72), the special education majors (pretest $\bar{X}$ = 72.16, posttest $\bar{X}$ = 65.79), and the secondary majors (pretest $\bar{X}$ = 69 7, posttest $\bar{X}$ = 63.44), but not markedly reduced for the special area majors (pretest $\bar{X}$ = 70.83, posttest $\bar{X}$ = 70.25).

Both of the confidence about teaching measures revealed significant average mean differences between the prospective teachers' four fields of specialization. The elementary majors ($\bar{X}$ = 1.37) expressed more average assurance about their decision to teach than did the special education majors ($\bar{X}$ = 1.89); whereas neither of these two specialization areas differed in mean assurance from the secondary ($\bar{X}$ = 1.63) and special areas ($\bar{X}$ = 1.89) majors ($F = 6.29$, $p = .001$).

Similarly, a significant combined mean difference was noted in the self ratings of effectiveness as future teachers within the prospective teachers' four fields of specialization ($F = 2.73$, $p = .046$) although the Scheffe procedure failed to reveal any significant pair-wise mean differences among this set of four means as reported in Table 3. An informal examination of these four average means suggests that the elementary majors especially and to a smaller extent the secondary and special education majors tended to rate their success as future teachers higher than did the prospective teachers within the special areas.

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Insert Table 3 about here
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Instructional Grade Level. The analyses completed with the prospective teachers' anticipated grade level of teaching classification (elementary and secondary) revealed significant average mean differences in attitude about teaching and assurance about the decision to become teachers as shown in Table 4. A significant interaction was also revealed between anticipated grade level of instruction and measurement times for the assurance measure. For analyses with the average means, the prospective teachers planning to teach at the elementary grade level expressed a more positive attitude about teaching ($\bar{X}$ = 53.18) as compared to those planning to teach at the secondary level ($\bar{X}$ = 49.97) yielding an $F = 11.73$ with $p = .001$. Also, the future elementary teachers were more assured of their decision to become teachers ($\bar{X}$ = 1.39) than were those planning to become secondary teachers ($\bar{X}$ = 1.74) resulting in $F = 10.60$, $p = .001$. The interaction effect ($F = 10.14$, $p = .01$) revealed that those planning to become elementary level teachers became markedly more assured (lower mean values indicate greater assurance) of their decision to teach during teacher training (pretest $\bar{X}$ = 1.59, posttest $\bar{X}$ = 1.18) but those planning to teach at the secondary level did not become more assured, in fact, to a small extent they became less assured (pretest $\bar{X}$ = 1.71, posttest $\bar{X}$ = 1.77).

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Insert Table 4 about here
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Basic Academic Skills. Analyses using the basic academic skills classification (high, average, and low one-thirds) did not reveal significant main effect mean differences among the categories of prospective teachers on any of the four affective criterion measures; however, two significant interactions were revealed as shown in Table 5.

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Insert Table 5 about here
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First, there was an interaction between the two measurement times during teacher training and the basic academic skills classification for the attitude measure. Both the high and average academic skills groups of prospective teachers expressed a less positive attitude about teaching as a career at the end of student teaching when compared to prior to training (pretest $\bar{X}$ = 51.37, posttest $\bar{X}$ = 50.43 and pretest $\bar{X}$ = 52.31, posttest $\bar{X}$ = 50.02, respectively); whereas the low academic skills group expressed a more positive attitude about teaching as a career upon the completion of student teaching as compared to prior to training (pretest $\bar{X}$ = 50.28, posttest $\bar{X}$ = 53.46).

The assurance of the decision to teach measure revealed a second significant interaction involving the level of academic skills classification of the prospective teachers and measurement time during training. The low academic skill students reported much greater assurance about teaching (pretest $\bar{X}$ = 1.75, posttest $\bar{X}$ = 1.25) while the high ability students reported just somewhat more assurance about teaching (pretest $\bar{X}$ = 1.61, posttest $\bar{X}$ = 1.43) after their student teaching practicum as compared to upon entry to teacher training; whereas the average basic academic skill students reported about the same level of assurance about their decision to teach upon entry to training (pretest $\bar{X}$ = 1.69, posttest $\bar{X}$ = 1.71) as compared to after training ($F = 4.10$, $p = .019$) as shown in Table 5.

In examining the general interaction patterns of the affective criterion scores associated with the classification of the basic academic skills as reported on Table 5, it appears that the low academic skills students rather consistently reported more pretest to posttest change during teacher training (although not all differences are significant) than did the middle or high academic skills prospective teachers on the attitude, anxiety, and the confidence about teaching measures. It would also appear that the direction of these changes would be in line with the aims and objectives of the teacher education institution, that is, in a positive direction.

Analyses Using Personality Attributes of the Aspiring Teachers

The data analysis procedures also revealed significant dependent variable differences ($p < .05$) between the classifications of the prospective teachers derived from the Rotter and Myers-Briggs measures resulting in the rejection of the second hypothesis. These two sets of personality classifications resulted in the identification of differences on three of the four criterion measures as reported on Tables 6 and 7.

Insert Tables 6 and 7 about here

Locus of Control. The high (X > 11), average (X = 9-11), and low (X < 9) approximate one-thirds classifications derived from Rotter's locus of control yielded significant combined means differences for the prospective teachers' anxiety about teaching and self-ratings of their effectiveness as future teachers. Those prospective teachers with average feelings of external control reported more anxiety about teaching than did those with low feelings of external control (combined pretest-posttest anxiety means of 71.51 and 64.33, respectively); whereas the aspiring teachers with high feelings of external control did not differ significantly in anxiety ($\bar{X}$ = 67.18) from either of the other two groups ($F = 5.76$, $p = .004$).

The low externality group (internals) rated themselves as more effective future teachers than did the high externality students (combined means of 5.55 and 5.13, respectively); whereas the average externality students did not differ significantly in self-rated effectiveness as future teachers ($\bar{X}$ = 5.29) from either of the other two groups ($F = 3.23$, $p = .04$). The data associated with the locus of control classifications are reported on Table 6. As noted on this table, there were no significant interactions of locus classification and points of time for any of the four dependent variables; thus, locus of control was not related to change over time.

Myers-Briggs Classifications. Analyses using the Myers-Briggs extrovert versus introvert classification revealed that the majority of this sample of aspiring teachers were extrovert types (70%) and that the extroverts expressed less anxiety about teaching ($\bar{X}$ = 66.40) than did the introverts ($\bar{X}$ = 69.89) $F = 4.52$, $p = .035$.

The extroverts showed a slight tendency to rate themselves as more effective as future teachers ($\bar{X}$ = 5.37) than did the introverts ($\bar{X}$ = 5.15) and tended to express a more positive attitude about teaching ($\bar{X}$ = 52.01) than did the introverts ($\bar{X}$ = 50.13); it should be noted, however, that the average mean differences for these two criterion measures only approached statistical significance ($F = 2.78$, $p = .09$; and $F = 3.59$, $p = .06$, respectively).

An interaction effect also was revealed between the extrovert versus introvert classification and the two measurement points during training for the anxiety about teaching criterion measure. This interaction analysis revealed that the extroverts reported more than twice as much reduction in anxiety about teaching between the prior to training and following the student teaching practicum measurement points (pretest $\bar{X}$ = 70.83, posttest $\bar{X}$ = 61.89) than did the introverts (pretest $\bar{X}$ = 72.11, posttest $\bar{X}$ = 67.67).

The analysis using the sensing versus intuitive classification provided by the Myers-Briggs instrument revealed that this sample of prospective teachers was composed almost equally of sensing (n = 76) and intuition (n = 77) types as shown on Table 8. There was a slight tendency for the intuitive students to rate themselves to be more effective as future teachers ($\bar{X}$ = 5.41) than for the sensing students ($\bar{X}$ = 5.19); it should be noted, however, that this mean difference only approached statistical significance ($p = .07$).

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Insert Table 8 about here
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The thinking versus feeling and the judging versus perceptive classifications derived from the Myers-Briggs instrument indicated that the majority of the teacher candidates were feeling (70%) and judging (58%) types (see Tables 9 and 10) but revealed just one classification mean difference on the four affective measures and no interaction effects. The judging group reported a more positive attitude toward teaching ($\bar{X}$ = 52.07) than did the perceptive group ($\bar{X}$ = 49.75) resulting in F = 5.14, p = .025 as reported on Table 10.

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Insert Tables 9 and 10 about here
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Summary and Discussion

The prospective teachers did report affective changes during teacher training on two of the four affective criterion measures administered prior to their entry to training and again following their student teaching practicum. In general, the aspiring teachers reported more assurance about their decision to become teachers and less anxiety about teaching but no difference in attitude about teaching or in self-ratings of effectiveness as future teachers upon the completion of their student teaching practicum as compared to measurements taken just prior to their beginning teacher training.

More specific to the purpose of this study, the prospective teachers' affective changes identified during teacher training were found to be related to one or more of their personal, academic, and personality attributes. These findings led to the rejection of the two stated hypotheses. The female prospective teachers increased their self-ratings of their probable success as future teachers from the commencement of training to completion of student teaching; whereas the males reported a decrease in their self-ratings of success as future teachers during this same period of training.

The prospective teachers in the elementary field of specialization, when compared to those in the special, secondary, and specialized fields expressed more average assurance about teaching, rated their average success as a future teacher higher, expressed a more positive attitude toward teaching, and reported the greater drop in anxiety about teaching at the completion of student teaching as compared to prior to training.

The prospective teachers planning to teach in the elementary grades expressed more assurance about teaching, reported a more positive attitude toward teaching, and gained more assurance about teaching during teacher training than did those who planned to teach in the secondary grades. The aspiring teachers with feelings of internal control rated themselves to be more effective future teachers and reported less anxiety about teaching than did those prospective teachers with average or high feelings of externality. These findings of relationships between prospective teachers' locus of control and their feelings of anxiety and teaching effectiveness appear to be consistent

with the findings from other studies (Levine, 1971 and Lefcourt, 1982, respectively).

The prospective teachers who were in the bottom one-third on basic academic skills tended to express a greater reduction in anxiety about teaching and a greater gain in assurance about their decision to become teachers during teacher training than did those in the middle or high one-thirds. Why teacher training had a greater and theoretically more desirable impact upon these less academically skilled prospective teachers can not be explained by the data collected in this study. It may well be that these aspiring teachers recognized their limited academic skills relative to the skills of their university peers during their early university studies. They, therefore, expressed relatively higher anxiety about teaching prior to teacher training than did their more able peers; but after experiencing success during training (despite their earlier self doubts), they expressed relatively greater confidence in themselves (lower anxiety and greater assurance about teaching).

Relative to the Myers-Briggs personal orientation classifications, it appears that extroverted prospective teachers reduced their anxiety about teaching to a greater extent during training and tended to rate themselves to be more effective as future teachers than did the introverted aspiring teachers. Further, the intuitive as compared to the sensing prospective teachers tended to become more confident about their success as future teachers during teacher training.

The finding of a decrease in anxiety about teaching during teacher training in the present study is consistent with the developmental model of teacher evolution, but contrary to the developmental model, attitude toward teaching did not become increasingly more positive during training. Pigge & Marso (1987) also reported a decrease in anxiety but no change in attitude about teaching during teacher training for cross-sectional samples of aspiring teachers measured at different points during their training. In contrast, Callahan (1980) and Lipka and Garlet (1981) have reported that prospective teachers may develop less positive attitudes toward teaching during preservice training.

Data obtained from the Myers-Briggs and Rotter instruments for this sample of prospective teachers appear to be generally consistent with findings reported by Myers and McCaulley (1985) and Lefcourt (1982). These researchers have described public school teachers as likely to be internally controlled, extroverted, sensing, feeling, and judging (i.e., being responsible for their own behavior; relating more easily to the outer world than to the inner world of ideas; possessing a preference for working with known facts rather than searching for possibilities and relationships; making judgements on personal values rather than on impersonal analysis and logic; and having a preference for a planned and orderly way of life rather than a flexible, spontaneous way, respectively).

This sample of prospective teachers may be described as internals (65% with Rotter's external scores of 11 or less), extroverted (E) with 80% so classified, either intuitive (N) with 51% or sensing (S) with 49%, feeling (F) with 68%, and judging (J) with 73% so classified. (Note that the Myers-Briggs' model would have projected more sensing than intuitive members in a sample of teachers; whereas this sample was divided rather equally between the two preferences.) Thus, as a group, the Myers-Briggs indicator for these prospective teachers

would be typed as ENFJ which can be described, in addition to the description presented in the previous paragraph, as possessing a personal orientation as follows: Responsive and responsible; generally having real concern for what others think or want, and try to handle things with due regard for other persons' feelings; can present a proposal or lead a group with ease and tact; sociable, popular, sympathetic; responsive to praise and criticism.

In summation, the results of this study have provided further evidence that measurable and generally desirable (at least in a theoretical sense) affective changes in prospective teachers do occur during teacher training. Secondly, the present study provides more evidence that affective changes in prospective teachers during teacher training are predictable and are likely to be influenced by the personal and academic attributes of the aspiring teachers. More explicitly, the findings from this study suggest that the inconsistencies in prior research findings regarding whether or not teacher training as an impact upon aspiring teachers may be at least partially explained by the relationships between prospective teachers' affective characteristics and their personal attributes or orientations such as described in the following statements:

1) Male prospective teachers, but not females, became less confident about their effectiveness as future teachers during their preservice training.

2) Those prospective teachers planning to teach in the elementary grades expressed more assurance about their decision to teach and a more positive attitude about teaching than did the secondary and special education majors. Further, the elementary grade level prospective teachers became more assured about both their decision to teach and their effectiveness as future teachers as they progressed through their preservice training whereas those planning to teach in the secondary grades did not.

3) Special area teachers perceived themselves as being less effective as future teachers as compared to the prospective teachers in the other three major fields, and they did not become less anxious about teaching as they progressed through teacher training as did the prospective teachers in other major fields. (This finding should be interpreted rather cautiously as only 10 aspiring teachers were classified as special area teachers.)

4) Those prospective teachers with lower basic academic skills upon the commencement of training developed a more positive attitude about teaching, increased their confidence about teaching, and became less anxious about teaching to greater extents than did those at higher skill levels. Conversely, the more highly skilled aspiring teachers appeared to be little influenced, at least affectively, by their teacher training.

5) Prospective teachers perceiving themselves to have more control over their life events (internal locus of control) reported less anxiety about teaching and more confidence about their effectiveness as future teachers as opposed to the more externally controlled teacher candidates as they progressed through training.

6) The prospective teachers preferring to use a judging orientation in addressing their world as contrasted to a perceptive orientation expressed a more positive attitude about teaching.

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Table 1

Basic Data and Dependent t-Ratios for the Four Dependent Variables

		Prior to Training		Post-Student Teaching			
Dependent Variables	N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	t	p
Attitude	149	51.28	6.22	51.62	6.92	0.61	.544
Anxiety	150	71.21	10.49	63.69	11.37	8.01	.000
Confidence							
Assurance*	149	1.68	0.76	1.46	0.82	2.93	.004
Effectiveness	148	5.24	0.91	5.37	0.94	1.51	.134

*Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Table 2

Change Over Time (Pre-Post Means) By Gender (M-F): Analyses* for the Four Dependent Variables

Dependent Variables	Gender Means: Males N	Pre	Post	Females N	Pre	Post	Gender F	Gender p	Gender X Time F	Gender X Time p
		(Ave)			(Ave)					
Attitude	25	49.80	50.20	124	51.57	51.90				
		(50.00)			(51.74)		2.01	.16	0.00	.96
Anxiety	25	69.88	64.80	125	71.48	63.46				
		(71.13)			(67.47)		0.00	.95	1.36	.25
Assurance**	25	1.72	1.68	124	1.68	1.42				
		(1.70)			(1.55)		1.16	.28	1.17	.28
Effectiveness	24	5.33	5.08	124	5.22	5.43				
		(5.21)			(5.32)		0.47	.49	3.63	.06

* Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

** Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Table 3
Change Over Time (Pre-Post Means) By Major: Analyses* for the Four Dependent Variables

Dependent Variable	Means of the Majors: Elementary N	Pre	Post (Ave)	Secondary N	Pre	Post (Ave)	Special Education N	Pre	Post (Ave)	Special Areas N	Pre	Post	Major F	p	X Time F	p
Attitude	68	52.43	53.37 (52.90)A**	48	51.10	49.58 (50.34)B	18	48.22	49.56 (48.88)B	12	50.00	51.75 (50.88)A,B	3.60	.02	1.65	.18
Anxiety	68	71.90	61.72 (69.98)	48	69.17	63.44 (66.30)	19	72.16	65.79 (68.97)	12	70.83	70.25 (70.54)	0.95	.42	3.36	.02
Assurance	67	1.57	1.18 (1.37)A**	51	1.63	1.63 (1.63)A,B	19	2.00	1.79 (1.89)B	10	2.10	2.00 (2.05)A,B	6.29	.001	1.82	.15
Effectiveness	66	5.30	5.57 (5.44)	50	5.26	5.28 (5.27)	19	5.21	5.26 (5.24)	11	4.73	4.82 (4.77)	2.73	.046	0.56	.64

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

**Means coded with a same letter do not differ significantly ($p < .05$)

Table 4

Change Over Time (Pre-Post Means) By Teaching Level: Analyses* for the Four Dependent Variables

Dependent Variables	Level Means: Elementary N	Pre	Post	Secondary N	Pre	Post	Level F	Level p	Level X Time F	Level X Time p
		(Ave)			(Ave)					
Attitude	73	52.85	53.52	56	50.32	49.63				
		(53.18)			(49.97)		11.73	.001	1.41	.24
Anxiety	74	72.26	63.99	56	69.09	63.41				
		(68.11)			(66.25)		1.31	.25	1.69	.20
Assurance**	74	1.59	1.18	56	1.71	1.77				
		(1.39)			(1.74)		10.60	.001	10.14	.001
Effectiveness	73	5.27	5.52	56	5.16	5.21				
		(5.40)			(5.19)		2.54	.11	0.98	.32

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

**Smaller values on this scale indicate greater assurance about the decision to teach.

Table 5
Change Over Time (Pre-Post Means) By Level of Basic Academic Skills: Analyses* for the Four Dependent Variables

Dependent Variable	Basic Academic Skills Classifications: High N	High Pre	High Post (Ave)	Average N	Average Pre	Average Post (Ave)	Low N	Low Pre	Low Post (Ave)	Skill Level F	Skill Level p	Skills X Time F	Skills X Time p
Attitude	49	51.37	50.43 (50.90)	49	52.31	50.02 (51.66)	50	50.28	53.46 (51.87)	0.41	.67	6.96	.001
Anxiety	50	70.04	62.98 (66.51)	49	71.41	64.67 (68.04)	50	72.10	63.22 (67.66)	0.36	.70	0.50	.61
Assurance	51	1.61	1.43 (1.52)	49	1.69	1.71 (1.70)	48	1.75	1.25 (1.50)	1.50	.23	4.10	.019
Effectiveness	50	5.34	5.46 (5.40)	49	5.22	5.33 (5.28)	48	5.15	5.33 (5.24)	0.62	.54	0.08	.92

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

**Means coded with a same letter do not differ significantly ($p < .05$)

Table 6
Change Over Time (Pre-Post Means) By Rotter's Locus of Control Classification: Analyses* for the Four Dependent Variables

Dependent Variable	Locus of Control Classifications: High (Externals) N	Pre	Post	Average N	Pre	Post	Low (Internals) N	Pre	Post	Locus Classification F	p	Locus X Time F	p
		(Ave)			(Ave)			(Ave)					
Attitude	38	50.63	50.42	36	51.11	51.69	36	51.56	53.14				
		(50.53)			(51.40)			(52.35)		0.99	.38	0.63	.54
Anxiety	39	71.03	63.33	36	76.06	66.97	36	67.92	60.75				
		(67.18)A,B**			(71.51)A			(64.33)B		5.76	.004	0.26	.77
Assurance	39	1.72	1.54	35	1.77	1.29	37	1.76	1.43				
		(1.63)			(1.53)			(1.59)		0.25	.28	1.05	.35
Effectiveness	38	5.11	5.16	34	5.09	5.53	37	5.38	5.73				
		(5.13)B**			(5.31)A,B			(5.55)A		3.23	.03	1.45	.24

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

**Means coded with a same letter do not differ significantly ($p < .05$)

Table 7

Change Over Time (Pre-Post Means) By Myers-Briggs Extroversion-Introversion Classification: Analyses* for the Four Dependent Variables

Dependent Variables	Myers-Briggs' Classification: Extroverts N	Pre	Post (Ave)	Introverts N	Pre	Post (Ave)	E-I Classif. F	p	E-I X Time F	p
Attitude	104	51.87	52.16 (52.01)	45	49.91	50.36 (50.13)	3.59	.06	0.01	.91
Anxiety	105	70.83	61.98 (66.40)	45	72.11	67.67 (69.89)	4.52	.035	4.73	.031
Assurance**	104	1.63	1.38 (1.51)	45	1.80	1.64 (1.72)	3.49	.064	0.33	.57
Effectiveness	104	5.32	5.42 (5.37)	44	5.04	5.25 (5.15)	2.78	.09	0.25	.62

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

** Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Table 8

Change Over Time (Pre-Post Means) By Myers-Briggs Sensing-Intuition Classification: Analyses* for the Four Dependent Variables

Dependent Variables	Myers-Briggs' Classification: Sensing N	Sensing Pre	Sensing Post	Intuition N	Intuition Pre	Intuition Post	S-I Classif. F	S-I Classif. p	S-I X Time F	S-I X Time p
		(Ave)			(Ave)					
Attitude	75	51.79	52.37	74	50.76	50.85				
		(52.08)			(50.80)		1.94	.17	0.19	.66
Anxiety	76	72.62	64.74	74	69.77	62.61				
		(68.68)			(66.19)		2.71	.10	0.15	.70
Assurance**	74	1.68	1.42	75	1.69	1.51				
		(1.55)			(1.60)		0.25	.62	0.21	.64
Effecti ness	73	5.08	5.30	75	5.39	5.44				
		(5.19)			(5.41)		3.31	.07	0.85	.36

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

** Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Table 9

Change Over Time (Pre-Post Means) By Myers-Briggs Thinking-Feeling Classification: Analyses* for the Four Dependent Variables

Dependent Variables	Myers-Briggs' Classification: Thinking N	Thinking Pre	Thinking Post	Feeling N	Feeling Pre	Feeling Post	T-F Classif. F	T-F Classif. p	T-F X Time F	T-F X Time p
		(Ave)			(Ave)					
Attitude	47	50.26	51.62	102	51.75	51.62				
		(50.94)			(51.68)		0.57	.45	1.52	.22
Anxiety	47	71.98	62.40	103	70.86	64.27				
		(67.19)			(67.57)		0.05	.82	2.18	.14
Assurance**	48	1.63	1.56	101	1.71	1.42				
		(1.59)			(1.56)		0.07	.80	2.12	.15
Effectiveness	47	5.26	5.45	101	5.23	5.34				
		(5.35)			(5.28)		0.27	.60	0.18	.67

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

* Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Table 10

Change Over Time (Pre-Post Means) By Myers-Briggs Judging-Perceptive Classification: Analyses* for the Four Dependent Variables

Dependent Variables	Myers-Briggs' Classification: Judging N	Pre	Post (Ave)	Perceptive N	Pre	Post (Ave)	J-P Classif. F	p	J-P X Time F	p
Attitude	109	51.86	52.28 (52.07)	41	49.68	49.83 (49.75)	5.14	.025	0.04	.84
Anxiety	110	71.09	63.63 (67.36)	40	71.55	63.85 (67.70)	0.04	.84	0.[illegible]	.91
Assurance**	109	1.66	1.43 (1.55)	40	1.75	1.55 (1.65)	0.77	.38	0.03	.86
Effectiveness	109	5.21	5.38 (5.30)	39	5.31	5.33 (5.32)	0.03	.87	0.53	.47

*Analyses completed by two-factor repeated measures ANOVAS using SAS's Type III sum of squares. This table presents row (group) and interaction findings; see Table 1 for findings related to column (time-same group pre-post) findings.

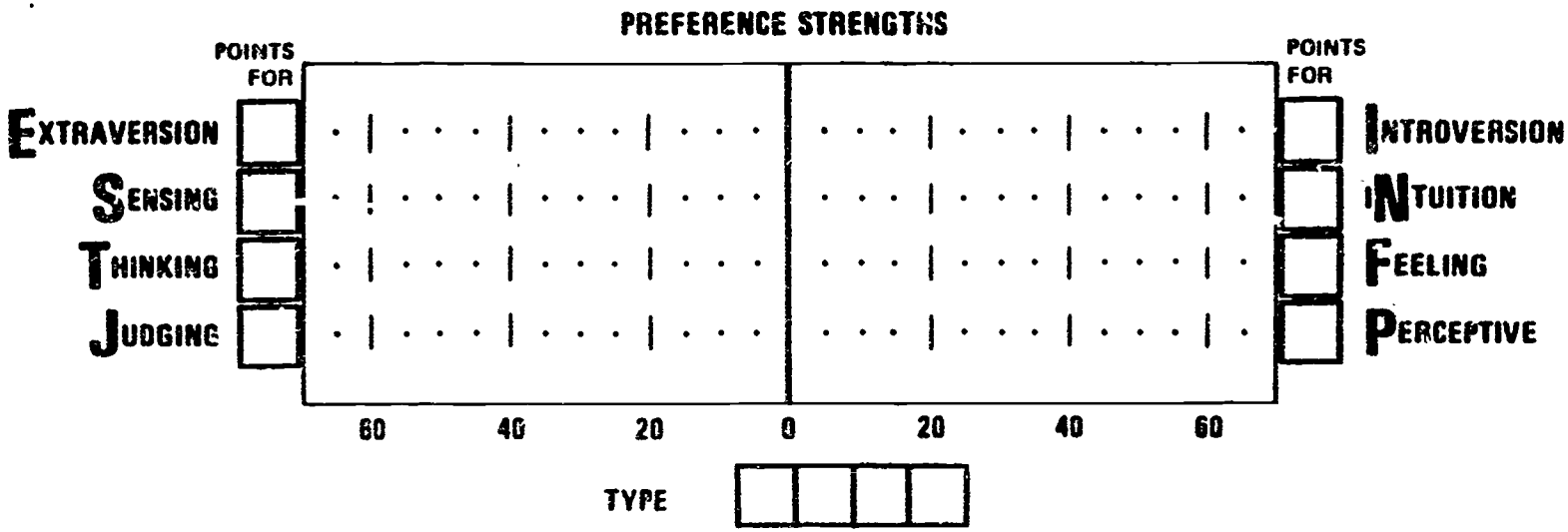
** Smaller mean values indicate more assurance about the prospective teachers' decisions to become teachers.

Appendix B

Report Form for Myers-Briggs Type Indicator

Report Form for Myers-Briggs Type Indicator*

Name _____ Sex: M☐ F☐ Age _____ Other _____ Date _____



Indicator questions deal with the way you like to use your perception and judgment, that is, the way you like to look at things and the way you like to go about deciding things. The answers given reflect four separate preferences called EI, SN, TF and JP. The profile above shows your score on each preference. The four letters of your "type" tell how you came out on all four preferences. What each preference means is shown below.

E An E for extraversion probably means you relate more easily to the outer world of people and things than to the inner world of ideas.

S An S for sensing probably means you would rather work with known facts than look for possibilities and relationships.

T A T for thinking probably means you base your judgments more on impersonal analysis and logic than on personal values.

J A J for the judging attitude probably means you like a planned, decided, orderly way of life better than a flexible, spontaneous way.

I An I for introversion probably means you relate more easily to the inner world of ideas than to the outer world of people and things.

N An N for intuition probably means you would rather look for possibilities and relationships than work with known facts.

F An F for feeling probably means you base your judgments more on personal values than on impersonal analysis and logic.

P A P for the perceptive attitude probably means you like a flexible, spontaneous way of life better than a planned, decided, orderly way.

Each combination of preferences tends to be characterized by its own set of interests, values and skills. On the back of this page are very brief descriptions of each type. Find the one matching your four letters and see whether or not it fits you. If it doesn't, try to find one that does. Whatever your preferences, of course, you may still use some behaviors characteristic of contrasting preferences, but not with equal liking or skill. This tendency may be greater if preference strength on a scale is low (under 15). For a more complete discussion of the types and their vocational and personal implications, see *Introduction to Type* by Isabel Briggs Myers, or consult your counselor.

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Appendix 16

END

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