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Abstract

This study presents a conceptual framework for examining the developmental stages of teachers and illustrates the differences found in student teachers as they develop. The research illustrates how by assessing a teacher candidate's own perception of importance, mastery, and desire to improve, an instrument can be used to prioritize needs at different points of a teacher's career as well as identify stages of development.   The statistical data, analysis, and interpretation of a study utilizing the Teacher Need Assessment Questionnaire (TNAQ) with teacher candidates is displayed.

Learning Across A Lifetime of Learning: Stages of Teacher Development

A key challenge for any teacher training program is developing an organized framework for assessing the change in teacher candidates as they are trained. One of the key questions involved in any skill training revolves around the importance of hands-on experience. Do teachers change as they gain experience?

This article presents a conceptual framework for examining the developmental stages of teachers and illustrates differences found in student teachers as they develop.

Teacher Training Model

The study's sample came from an established teacher education program where students completed methods/techniques courses on campus and then completed a full sixteen-week semester of student teaching.

The Study's Data Collection Instrument

To examine how teacher candidates change over a 16 week student teaching experience, a number of paths for examination are present in the literature.   For this research, the authors chose to examine developmental stages. Numerous researchers have examined developmental stage differences of teachers (Fuller and Brown, 1975; Hall and Jones, 1976; Pataniczek, 1978; Hunt and Michael, 1985; Cruickshank and Callahan, 1983; Hitz and Roper, 1986; and Smith and Sanche, 1993).   From these theoretical frameworks, the developmental stages of teachers as they relate to a specific training program were operationalized in an assessment instrument that has been used over the past two decades. Using as a basis the Fuller and Brown stages - survival, mastery, and impact - the researchers used the Teacher Needs Assessment Questionnaire (TNAQ) items to define the teacher in relation to one of three stages - Establishing Structures, Developing the Science of Teaching, and Cultivating the Art of Teaching.

The instrument used in the study, the Teacher Needs Assessment Questionnaire (TNAQ), contains fifty-one different instructional statements and role characteristics associated with effective teaching. The assessment tool was designed to measure specific instructional and professional needs by examining the student's own perception of importance, mastery, and desire to improve.   Using these three perceptions, a fourth score, a Need/Desire (N/D) score, was numerically derived which represented the student teacher's own perception of need and desire to work in each area.

It was the Need/Desire score (ND) that was used to establish individual need priorities, stage development, and interest area identification. The researchers took the position that to establish a need there should be a perception that it is important, that it is not presently being done well, and that there is an aspiration to improve.

To help identify developmental stages and interest areas, each of the 51 items were grouped according to their focus. The three stages - Establishing Structures, Developing the Science of Teaching, and Cultivating the Art of Teaching - were aligned with Fuller and Brown's stages - Survival, Mastery, and Impact. After several statistical studies (Runyan, et. al. 1993, 1994, 1995, 1996), the items identified for each stage were finalized and the characteristicof the stages were confirmed.

Sample Population

The sample for this study was comprised of 49 student teachers who were participating in a sixteen-week student teaching experience in various Kansas, Missouri, and Oklahoma school districts during the 2013 fall semester. There were 21 elementary and 28 secondary student teachers with four not completing both the

September pretest and December posttest.

Research Methods

The data for the study was derived from the pre and post-tests of respondents using the Teacher Needs Assessment Questionnaire (TNAQ).   The exploratory issue centered on whether there were any differences in the needs expressed in the beginning and at the end of the student teaching experience.

The TNAQ was administered to the student teachers during the 2013 fall semester as they began in September and when they were finished in December. The TNAQ was completed by a total of 49 teacher candidates at the beginning of the student teaching experience and 45 at the end. In essence, of the original 49 candidates completing the pre-test, only 45 candidates completed the post-test. Of these 45 student teachers, 18 were elementary and 27 were secondary. Three elementary majors and one secondary major did not complete the post-test.

Results

First, pre- and post-test results were analyzed using a multivariate analysis of variance. Overall TNAQ scores were higher on the post-test than the pre-test. For the whole group, all sub-scale scores increased on the post-test; however, their difference was not significant.

Second, additional analyses were conducted using a series of dependent t-tests to compare pre- and post-test mean scores for each sub-scale. The t-tests indicated that the difference in pre- and post-test scores were significant for two sub-scales, Developing Science of Teaching and Classroom Management.

For the developmental stages, Cultivating the Art of Teaching (Impact) had the highest mean score on the pre-test, and Developing the Science of Teaching (Mastery) had the highest mean score on the post-test. For Interest Areas, Support Structures had the highest mean score on both the pre-test and the post-test. Classroom Management was the lowest score on the pre-test, but the second highest on the post-test (Table 1).

There was no significant difference between elementary and secondary candidates' scores on the pre-test or post-test; however, it is important to note that secondary scores were lower than elementary in all areas on the pre-test and higher in all areas on the post-test. Elementary scores were lower on the post-test in all areas except Developing Science of Teaching (Mastery) and Classroom Management; however, the difference in scores between the pre-test and post-test was not significant for any of the sub-scale scores. Secondary Post-test scores were significantly higher than Pre-test scores for all sub-scale scores except Interpersonal Interaction (Table 2).

Overall, there were a similar number of candidates self-reporting at each level on the pre- and post-tests; however, only about 1/3 of candidates remained at the same

developmental stage.(Table 3).

Five items had lower mean scores on the post-test (1, 34, 39, 41, and 44). All other items had higher need scores on the post-test (Table 4).

Interpretations

From the analysis of the data, several conclusions were reached: In examining the overall pre and post-test means using multivariate analysis on the Interest Area subscales, the student teachers were shown to have higher post-test means than pre-test means on all subscales. This would tend to support the idea that the teacher candidates had more of a perceived need for improvement after student teaching. In essence, as student teaching experience was gained the higher the need for improvement. In examining the overall pre and post-test means using t-tests on the Interest Area subscales, one subscale, Classroom Management, was significantly different. This would support the idea that the teacher candidates have significant concerns for improvement in specific management strategies after student teaching.

1. In examining the overall pre and post-test means on the Interest Area subscales, one subscale, Support Structures, had the highest mean score on both the pre and post-test. This would support the idea that establishing support structures remained an area of concern throughout the experience.

2. In examining the overall pre and post-test means in both the Stages of Teaching and the Interest Area subscales, the secondary teacher candidates mean scores in all areas were lower than elementary candidates on the pre-test and higher in all areas on the post-test. This supports the idea that secondary student teachers began the experience with lower levels of concern but ended with higher concern levels than elementary student teachers.

3. In examining the overall pre and post-test means in both the Stages of Teaching and the Interest Area subscales, the secondary teacher candidates post-test mean scores in all subscale areas except Interpersonal Interaction were significantly higher than the pre-test. This supports the idea that secondary student teachers had experiences that led them to have a concern to improve in all areas other than interpersonal relationships.

4. In examining the pre and post-test means for the three Stages of Teaching, the pre and post means for all student teachers were significantly different for Developing the Science of Teaching (Mastery). This would support the idea the teacher candidates have a higher interest in learning about the science of teaching after student teaching.

5. In examining developmental stage movement identified by pre and post-test means, nearly two-thirds of the student teachers moved to a different development stage. This would support the idea that with experience, teachers tend to move through stages.

6. In examining the pre and post-test means of the 51 items on the instrument, 46 of the items had higher means on the post-test. This would tend to support the idea that after completing their student teaching experiences, the teacher candidates saw a greater need to develop their skills and abilities in almost every area.

Given these conclusions, though they support previous studies, the researchers believe further investigation is needed.

1. To what extent does the instrument reflect differences between rural, suburban, and urban classroom settings?
2. To what extent does the instrument accommodate gender or age differences?
3. What specific factors in the training program play a role in need perception?
4. To what extent would more extensive experiences in the classroom prior to student teaching affect the stage of development for pre-service teachers?

Conclusions

It is evident from this study that training experiences produce or, at least, make a difference with percieved skills and knowledge. Given these conclusions, the researchers believe further investigation is still needed. The researchers are excited about expanding the use of the questionnaire to better identify developmental stages within different training methods.

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5

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Table 1

TNAQ Pre and Post Test Overall Results

	Mean	SD	Mean	SD	Df	T	P
Overall Mean	5.082	0.852	5.298	.7686	44	1.746	.088
Establishing Structures urvival)	5.061	0.855	5.228	.7415	44	1.303	.199
Developing Science* lastery)	5.034	0.941	5.342	.8979	44	2.088*	.043*
Cultivating the Art (Impact)	5.139	0.954	5.307	.8158	44	1.172	.247
Support Structures	5.176	1.054	5.380	.9339	44	1.357	.182
Planning	5.129	0.937	5.289	.8130	44	1.214	.231
Classroom Management*	5.000	0.903	5.367	.8402	44	2.466*	.018*
Teaching Strategies	5.046	0.969	5.343	.8394	44	1.884	.066
Interpersonal Interaction	5.042	0.900	5.089	.8099	44	.356	.723

*Indicates significant difference (N=45, p<.05)

Table 2

TNAQ Pre and Post Test Mean Scores by Level

	Elementary PRE	Elementary Post	Secondary PRE	Secondary Post
Overall Mean	5.317	5.207	4.925	5.358*
Establishing Structures urvival)	5.356	5.179	4.865	5.260*
Developing Science lastery)	5.290	5.293	4.863	5.374*
Cultivating Art (Impact)	5.337	5.170	5.007	5.399*
Support Structures	5.456	5.306	4.989	5.430*
Planning	5.417	5.272	4.937	5.300*
Classroom Management	5.222	5.272	4.852	5.430*
Teaching Strategies	5.353	5.231	4.842	5.418*
Interpersonal Interaction	5.189	4.972	4.944	5.167

Bold indicates higher need score

Table 3

Developmental Stages Identified on Pre- and Post-tests

	Elementary		Secondary		All Candidates	
	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
Survival	8	4	6	5	14	9
Mastery	9	8	12	12	21	20
Impact	4	6	10	10	14	16
Developmental Stage Decreased	8		10		18	
Developmental Stage Increased	4		8		12	
Developmental Stage Stayed the Same	6		9		15	

*Indicates significant difference (p <.05)

Table 4

TNAQ Item Mean Scores for Pre- and Post-Test

TNAQ ITEM	Pre-Test	Post-Test
1. Teaching Responsibilities*	4.510	4.356
2. Management Strategies	5.020	5.844
3. Lesson Plan Objectives	4.918	5.044
4. Lesson Plan Construction	4.714	4.800
5. Instructional Variation	5.408	5.556
6. Enthusiasm	5.082	5.111
7. Motivation	5.224	5.378
8. Verbal Clarity	4.918	5.156
9. Material Organization	4.939	5.222
10. Motivational Set	5.102	5.400
11. Daily Review	4.857	5.200
12. Direct Instruction	4.490	5.356
13. Cooperative Learning	4.898	5.444
14. Adequate Illustration	5.224	5.644
15. Question Level Variation	5.347	5.467
16. Question Wait Time and Name Usage	5.000	5.067
17. Question Techniques	5.102	5.133
18. Parental Support	4.714	5.578
19. Question Distribution	5.020	5.178
20. Transitions	5.306	5.578
21. Checks for Understanding	5.082	5.400
22. Learning Styles	5.204	5.378
23. Technology Tools Usauge	4.980	5.222
24. Closure	5.163	5.489
25. Instructional Technology Usuage	5.184	5.311
26. Clear Directions	5.429	5.511
27. High Time on Task	5.184	5.289
28. Sponge Activities	4.735	5.267
29. Room Layout	4.918	5.244
30. Classroom Rules	4.878	5.089
31. Discipline hierarchy	5.167	5.556
32. Positive Reward System	5.229	5.378
33. Monitoring & Redirecting	4.833	5.333
34. Physical Safety*	5.347	5.156
35. Evaluation System	5.224	5.311
36. Assignment Feedback	4.918	5.378
37. Reteaching	5.143	5.267
38. Student/Parent Comm.	4.980	5.444

39. Empathy, Warmth, Respect*	5.143	4.933
40. Consistent Disposition	4.837	4.978
41. High Expectations*	5.306	5.044
42. Knowledge of Students	5.265	5.533
43. Effective Role Model	5.102	5.267
44. Specialized Services*	5.551	5.444
45. Staff Collegiality	5.286	5.356
46. Administrative Relations	5.286	5.356
47. Parental Relations	5.020	5.600
48. Conferencing Skills	5.167	5.356
49. Current Instructional Knowledge Base	5.184	5.333
50. School Leadership Activity	5.041	5.178
51. Personal Interest in Students	5.041	5.244