

MENTORS' PERCEPTIONS OF THE EFFECTIVENESS OF THE COMPONENTS
AND TECHNOLOGICAL VENUES IMPLEMENTED IN ONLINE TEACHER
INDUCTION PROGRAMS FOR NOVICE TEACHERS

A Dissertation

by

KIMBERLY K. LIVENGOOD

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

December 2006

Major Subject: Curriculum and Instruction

MENTORS' PERCEPTIONS OF THE EFFECTIVENESS OF THE COMPONENTS
AND TECHNOLOGICAL VENUES IMPLEMENTED IN ONLINE TEACHER
INDUCTION PROGRAMS FOR NOVICE TEACHERS

A Dissertation

by

KIMBERLY K. LIVENGOOD

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Chair of Committee,
Committee Members,

Head of Department,

Norvella P. Carter
Lauren D. Cifuentes
Stephanie L. Knight
Patricia J. Larke
Dennie Smith

December 2006

Major Subject: Curriculum and Instruction

ABSTRACT

Mentors' Perceptions of the Effectiveness of the Components and Technological Venues

Implemented in Online Teacher Induction Programs for Novice Teachers.

(December 2006)

Kimberly K. Livengood, B.S., Texas Tech University;

M.S., Texas A&M University-Corpus Christi

Chair of Advisory Committee: Dr. Norvella P. Carter

This descriptive study provided a synthesis of the form, structure, activity and relationship components utilized by online teacher induction programs designed to support novice teachers. Mentors involved in online teacher induction programs responded to an online questionnaire. The perceptions of 51 mentors involved in 36 online teacher induction programs in 16 states and one country in addition to the United States were examined to determine the effectiveness of components incorporated.

A synthesis of the technological venues utilized was provided through a statistical analysis of the mentors' responses. The mentors' perceptions of the effectiveness of incorporated technological venues were statistically examined. Additionally, their perceptions of professional development, emotional support, reflection, and formative observation components in relation to the program's characteristics were also examined through the analysis of their responses to the online questionnaire.

Analysis of the mentors' perceptions appeared to indicate the effective implementation of professional development and emotional support components via technological venues to support novice teachers. The professional development component was perceived as effective regardless of the school districts' sizes, grade level taught or certification route of the novice teachers. To improve novice teachers' pedagogical knowledge, it is suggested that online teacher induction programs employ video streaming, videotapes, and websites to deliver the professional development component. Additionally, it appeared that mentors perceived electronic mail as most effective for providing emotional support. However, telephones, bulletin boards, video conferences, and chats were also effectively utilized to support novice teachers emotionally.

DEDICATION

I can do everything through him who gives me strength.

Philippians 4:13

To my family who have provided me their unwavering support and encouragement to
pursue my goals.

To my parents, Benny and Colene Cowan, who believed that I could accomplish any
goal set before me.

To Christiaan, Seli, and Zach, for their sacrifices as I spent my time studying, writing,
and traveling to fulfill my dreams.

And to my husband, Bobby, who encouraged me to dream and then continued to believe
that I could accomplish an unbelievable goal.

ACKNOWLEDGMENTS

God has placed a number of wonderful people in my life that has contributed to my life personally and professionally. They have encouraged me to pursue my goals and fulfill my dreams.

I want to extend my appreciation to Dr. Norvella P. Carter, my dissertation chair, who saw my potential, opened the doors and inspired me to achieve my goals, to Dr. Stephanie Knight, who motivated me to analyze my observations, to Dr. Patricia Larke, who challenged me to change my perspective and to Dr. Lauren Cifuentes, who guided my interest in the creative use of technology.

My sincere gratitude goes to my friend and counsel, Dr. Vickie Moon Merchant, who shared the rollercoaster ride of trials and successes. She has been my mentor since I began teaching and has continued to encourage me through sleepless nights, frustrations and self-doubt.

To my friends in the Corpus Christi Group, Debbie Vera, Shanah Yandell, Corinne Valadez, Patty Walter, and Ouida Plimper, thank you. Without the study groups and travel partners, this goal would have been more difficult to accomplish.

To my family, friends, and students who have supported my endeavor through their prayers, thank you.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
DEDICATION.....	v
ACKNOWLEDGMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES.....	xi
LIST OF TABLES.....	xv
CHAPTER	
I INTRODUCTION.....	1
Background of the Study.....	1
Statement of the Problem.....	4
Statement of the Purpose.....	5
Research Questions.....	5
Significance of the Study.....	6
Cognitive Apprenticeship.....	7
Definitions of Terms.....	10
Assumptions.....	12
Limitations of the Study.....	12
Summary.....	12
II REVIEW OF LITERATURE.....	14
Attrition.....	14
Issues Faced by Novice Teachers	17
Cultural Mismatch.....	18
Isolation.....	21
Retention.....	23
Issues Addressed by Teacher Induction Programs.....	25
Addressing Cultural Mismatch.....	25
Addressing Isolation.....	27
Teacher Induction Programs' Components.....	31

CHAPTER	Page
Emotional Support Component.....	33
Professional Development Component.....	36
Formative Observation Component.....	38
Reflection Component.....	41
Technology.....	44
Technology Employed to Deliver Teacher Induction Program Components	44
Emotional Support Component.....	45
Professional Development Component.....	47
Formative Observation Component.....	50
Reflection Component.....	51
Benefits of Online Teacher Induction Programs	51
Evaluation.....	53
Summary.....	54
 III METHODOLOGY.....	 55
Population.....	55
Sample.....	55
Instrument.....	62
Pilot Study.....	65
Reliability	66
Validity	67
Research Design.....	68
Data Collection.....	68
Data Analysis.....	69
Research Question 1.....	70
Research Question 2.....	70
Research Question 3.....	72
Research Question 4.....	73
Research Question 5.....	74
Summary.....	76
 IV RESULTS AND ANALYSIS.....	 77
Research Question 1.....	78
Research Question 2.....	80
Professional Development Component.....	81
Emotional Support Component.....	84

CHAPTER	Page
Reflection Component.....	87
Formative Observation Component.....	90
Research Question 3.....	94
Professional Development Component.....	94
Emotional Support Component.....	95
Formative Observation Component.....	98
Reflection Component.....	100
Research Question 4.....	104
Technological Venues for Professional Development	104
Technological Venues for Emotional Support	118
Technological Venues for Formative Observation	143
Technological Venues for Reflection.....	155
Research Question 5.....	170
Professional Development Component.....	172
Emotional Support Component.....	176
Reflection Component.....	181
Formative Observation Component.....	184
Summary.....	192
 V DISCUSSION, CONCLUSIONS AND SUMMARY.....	 194
Research Question 1.....	197
Research Question 2.....	200
Research Question 3.....	203
Professional Development Component.....	203
Emotional Support Component.....	204
Reflection Component.....	205
Formative Observation Component.....	205
Research Question 4.....	207
Professional Development Component.....	208
Emotional Support Component.....	208
Formative Observation Component.....	209
Reflection Component.....	210
Research Question 5.....	211
Professional Development Component.....	212
Emotional Support Component.....	213
Reflection Component.....	215
Formative Observation Component.....	217
Conclusions.....	220
Recommendations.....	220
Implications for Further Research.....	223

	Page
Summary.....	224
REFERENCES.....	226
APPENDIX A.....	252
APPENDIX B.....	254
APPENDIX C.....	256
APPENDIX D.....	258
VITA.....	278

LIST OF FIGURES

FIGURE		Page
3.1	Conceptual Framework of Online Teacher Induction Programs....	64
4.1	Histogram of Perceived Effectiveness of the Professional Development Component.....	83
4.2	Normal Q-Q Plot of Perceived Effectiveness of the Professional Development Component	84
4.3	Histogram of the Perceived Effectiveness of the Emotional Support Component	86
4.4	Normal Q-Q Plot of the Perceived Effectiveness of the Emotional Support Component.....	87
4.5	Histogram of Perceived Effectiveness of Reflection Component.....	89
4.6	Normal Q-Q Plot of Perceived Effectiveness of Reflection Component Methods of Reflection.....	90
4.7	Histogram of the Perceived Effectiveness of the Formative Observation Component.....	92
4.8	Normal Q-Q Plot of Perceived Effectiveness of the Formative Observation Component.....	93
4.9	Histogram of Perceived Effectiveness of Video Streaming.....	107
4.10	Normal Q-Q Plot of Perceived Effectiveness of Video Streaming.....	108
4.11	Histogram of Perceived Effectiveness of Videotapes.....	109
4.12	Normal Q-Q Plots of Perceived Effectiveness of Videotapes.....	110
4.13	Histogram of Perceived Effectiveness of Websites.....	111
4.14	Normal Q-Q Plot of Perceived Effectiveness of Websites.....	112

FIGURE	Page
4.15	Histogram of Perceived Effectiveness of Face-to-Face Meetings..... 114
4.16	Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings..... 115
4.17	Histogram of Perceived Effectiveness of Video Conferencing.... 116
4.18	Normal Q-Q Plot of Perceived Effectiveness of Video Conferencing 117
4.19	Histogram of Perceived Effectiveness of Mentor-Novice Teacher Telephone Communication..... 121
4.20	Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Telephone Communication..... 122
4.21	Histogram of Perceived Effectiveness of Mentor-Novice Teacher Bulletin Board Communication..... 123
4.22	Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Bulletin Board Communication..... 124
4.23	Histogram of Perceived Effectiveness of Mentor-Novice Teacher Chat Communication..... 126
4.24	Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Chat Communication..... 127
4.25	Histogram of Perceived Effectiveness of Mentor-Novice Teacher Face-to-face Meetings Communication..... 128
4.26	Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Face-to-face Meetings Communication 129
4.27	Histogram of Perceived Effectiveness of Mentor-Novice Teacher Video Conference Communication..... 131
4.28	Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Video Conference Communication..... 132

FIGURE	Page
4.29	Histogram of Perceived Effectiveness of Novice-Novice Bulletin Board Communication..... 135
4.30	Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Bulletin Board Communication..... 136
4.31	Histogram of Perceived Effectiveness of Novice-Novice Chat Communication..... 137
4.32	Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Chat Communication..... 138
4.33	Histogram of Perceived Effectiveness of Novice-Novice Face-to-face Communication..... 140
4.34	Normal Q-Q Plot of Perceived Effectiveness of Novice Teacher-Novice Teacher Face-to-face Communication..... 141
4.35	Histogram of Perceived Effectiveness of Novice Teacher-Novice Teachers Video Conference..... 142
4.36	Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Video Conferencing 144
4.37	Histogram of Perceived Effectiveness of Face-to-face Meetings for Formative Observations..... 146
4.38	Normal Q-Q Plot of Perceived Effectiveness of Face-to-face Meetings Formative Observations 147
4.39	Histogram of Perceived Effectiveness of Videotaped Formative Observations..... 149
4.40	Normal Q-Q Plot of Perceived Effectiveness of Videotaped Formative Observations..... 150
4.41	Histogram of Perceived Effectiveness of Video Conferencing to Conduct Formative Observations..... 151
4.42	Normal Q-Q Plot of Perceived Effectiveness of Video Conferencing to Conduct Formative Observations 152

FIGURE	Page
4.43	Histogram of Perceived Effectiveness of Audiotape Formative Observations..... 154
4.44	Normal Q-Q Plot of Perceived Effectiveness of Audiotaped Formative Observations..... 155
4.45	Histogram of Perceived Effectiveness of Chats for Reflection on Instructional Practices..... 158
4.46	Normal Q-Q Plot of Perceived Effectiveness of Chats for Reflection on Instructional Practices..... 159
4.47	Histogram of Perceived Effectiveness of Electronic Mail for Reflection Instructional Practices..... 160
4.48	Normal Q-Q Plot of Perceived Effectiveness of Email..... 161
4.49	Histogram of Perceived Effectiveness of Face-to-Face Meetings between Mentors and Novice Teachers for Reflection..... 163
4.50	Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings between Mentors and Novice Teacher to Reflect..... 164
4.51	Histogram of Perceived Effectiveness of Face-to-Face Meetings among Novice Teachers..... 166
4.52	Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings among Novice Teachers..... 166

LIST OF TABLES

TABLE		Page
3.1	Location of Online Teacher Induction Programs.....	57
3.2	Length of Existence of the Teacher Induction Programs	58
3.3	Volunteering Districts' Sizes	59
3.4	Certification Status of the Novice Teachers Served by Online Teacher Induction Programs	60
3.5	Grade Level Taught by the Novice Teachers Served by Online Teacher Induction Programs	61
3.6	Mentor Ages	62
3.7	Questions Representing Each Component	67
3.8	Questions per Each Component.....	72
4.1	Components Included in Online Teacher Induction Programs	79
4.2	Mentors' Perceptions of the Effectiveness of Online Teacher Induction Program Components.....	80
4.3	Normality Assessments of Effectiveness Scores of the Professional Development Component	82
4.4	Normality Assessments of Effectiveness Scores of the Emotional Support Component	85
4.5	Normality Assessments of Effectiveness Scores of the Reflection Component.....	88
4.6	Normality Assessments of Effectiveness Scores of the Formative Observation Component.....	91
4.7	Venues of Professional Development Presentation.....	95
4.8	Technological Venues of Communication Utilized.....	96

TABLE	Page
4.9	Venues of Communication among Novice Teachers..... 97
4.10	Venues of Communication Utilized to Complete Formative Observations..... 98
4.11	Teacher Observed by Novice Teachers..... 99
4.12	Venues Used by Novice Teachers to Self-critique Instruction 100
4.13	Venues of Communication for Reflection..... 101
4.14	Frequency of Technological Venues for Each Component...102
4.15	Mentors' Perceptions of the Effectiveness of the Technological Venues Utilized for Professional Development 105
4.16	Mentors' Perceptions of the Effectiveness of the Technological Venues Utilized for Mentor-Novice Teacher Communication 120
4.17	Mentors' Perceptions of the Effectiveness of the Technological Venues Utilized for Novice Teacher-Novice Teacher Communication..... 134
4.18	Mentors' Perceptions of the Effectiveness of the Technological Venues Utilized for Formative Observations..... 145
4.19	Mentors' Perceptions of the Effectiveness of the Technological Venues Utilized for Reflection..... 157
4.20	Mentors' Perceptions of Technological Venues for Each Component..... 168
4.21	Mean Scores of Mentors' Perceptions of the Effectiveness of the Professional Development Component by Characteristics..... 173

TABLE	Page
4.22	Significance of Mentors' Perceptions of the Effectiveness of the Professional Development Component 174
4.23	Mean Scores of Mentors' Perceptions of the Effectiveness of the Emotional Support Component by Characteristics..... 177
4.24	Significance of Mentors' Perceptions of the Effectiveness of the Emotional Support Component..... 178
4.25	Significance of the Mentors' Perceptions of the Effectiveness of the Emotional Support Component of School Districts' Sizes Served by Mentors 179
4.26	Mean Scores of Mentors' Perceptions of the Effectiveness of the Reflection Component by Characteristics..... 182
4.27	Significance of Mentors' Perceptions of the Effectiveness of the Reflection Component 183
4.28	Mean Scores of Mentors' Perceptions of the Effectiveness of the Formative Observation Component by Characteristics..... 185
4.29	Significance of Mentors' Perceptions of the Effectiveness of the Formative Observation Component 187
4.30	Significance of Mentors' Perceptions of the Effectiveness of the Formative Observation Component of School Districts' Sizes 188
4.31	Summary of Mentors' Perceptions of Components..... 190

CHAPTER I

INTRODUCTION

Background of the Study

Increased school enrollment combined with the growing number of teachers leaving the profession due to classroom challenges and retirement has resulted in a national teacher shortage (Darling-Hammond, 2000, 1998; Gold, 1996; Henke, Chen & Geise, 2000; Schlechy & Vance, 1983; Strong, 2004). Teacher induction programs have assisted novice teachers providing emotional support and opportunities to develop professionally; thereby reducing the attrition rate (Darling-Hammond, 1998; Fidler & Haselkorn, 1999; Recruiting New Teachers, Inc. [RNT], 2000; Smith & Ingersoll, 2004). Face-to-face teacher induction programs have been developed to address issues that challenge novice teachers (Ayers & Griffin, 2005; Darling-Hammond, 1998; RNT, 2000; Stallings & Quinn, 1991). However, when face-to-face teacher induction programs have been unavailable, online teacher induction programs have provided novice teachers with necessary support and assistance (Collins, 1999; DeWert, Babinski & Jones, 2003; Feiman-Nemser, 2001; Henson & Shapiro, 1999; RNT, 1999; Single & Muller, 2001).

To accommodate the number of children enrolled in the educational system, an average of 200,000 new teachers will need to be hired annually over the next five years

This dissertation follows the style and format of the *American Educational Research Journal*.

(National Center for Education Statistics [NCES], 1998). The challenges faced by novice teachers, such as cultural mismatch and isolation, have led these teachers to abandon the classroom within five years of beginning their teaching career. According to Darling-Hammond (1998) and Ingersoll (2000), 46 percent have been leaving within the first five years (Darling-Hammond, 1998; Ingersoll, 2001). Soon after beginning their careers, novice teachers have felt overwhelmed, disillusioned and lacking confidence needed to cope with the pressures of a classroom (Gold, 1996; Moir, 1999).

Without access to a teacher induction program, novice teachers have felt isolated, lacked opportunities to engage in conversations with peers or more experienced teachers and rarely sought assistance regarding challenging circumstances in their classrooms (Harris, 1995). Teacher induction programs have appeared to offer a learning environment that has encouraged interaction between peers and mentors as described by Collins (1991). Collins (1991) six characteristics of cognitive apprenticeship have been implemented in induction programs (Woodd, 1999). These characteristics included modeling, coaching, scaffolding; articulation, reflection, exploration, and fading support (Collins, Brown & Newman, 1989; Snyder, Farrell & Baker, 2000). Participation in teacher induction programs that have incorporated these characteristics has demonstrated a positive effect on teacher retention and teacher quality as well as student achievement (Darling-Hammond, 1998; RNT, 2000).

Four components of teacher induction programs included emotional support, professional development, formative observations, and reflection (Feiman-Nemser,

2001; Foster, 2004; McCann, Johanessen & Ricca, 2004; Odell & Huling, 2000; Villar, 2004).

In a study, Babinski and Rogers (1998) found that providing novice teachers the opportunity to share, seek assistance, and reflect in a supportive safe environment, the feelings of isolation were decreased (Babinski & Rogers, 1998). Trained mentors guided novice teachers as they sought assistance to address classroom issues (DeWert et al., 2003). According to Schön (1987), when teachers were given an opportunity to reflect, they developed professionally and became thoughtful and effective teachers. Through involvement in an induction program, these novice teachers experienced higher retention rates in addition to higher job satisfaction (Dianda, Ard, Quartz, Tushnet, Radio & Bailey, 1991; Wong-Park, 1997).

However, not all novice teachers have had access to teacher induction programs due to scheduling conflicts, geographic limitations or cost constraints (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001). To combat this lack of access, online teacher induction programs, also known as e-mentoring, have provided an alternative to face-to-face teacher induction. Single and Muller (2001) have defined e-mentoring as a “relationship that is established between a more senior individual (mentor) and a lesser skilled or experienced individual (protégé) to help him or her succeed, while also assisting in the development of the mentor” (p. 12). Through the use of technology within an online teacher induction program, novice teachers have been given opportunities to receive emotional support and professionally develop (Gravett, 2000). Teacher induction components have been made available via online

communication or through a combination of online and face-to-face communications with peers and a mentor (Nicol, Minty & Sinclair, 2003). Consequently, discussions, sharing of ideas, and reflection on instructional strategies have been possible (Collins, 1991).

Statement of the Problem

A recent review of the research indicated that the number of teachers leaving the profession in 1999-2000 exceeded those entering by 23 percent (National Commission on Teaching and America's Future [NCTAF], 2003). To increase the retention of novice teachers, teacher induction programs have been developed. These programs have proven to effectively increase teacher retention and quality as well as student achievement (Darling-Hammond, 1998; Darling-Hammond & Sykes, 2003; RNT, 2000). Due to the lack of access to face-to-face induction programs as a result of schedule conflict, geographic limitations, and cost constraints (Yearwood & Nichols, 1998), teacher induction programs via online communication has appeared to be a viable solution to meet the needs of novice teachers (Eisenman & Thornton, 1999). Online induction programs have been shown to effectively support novice teachers (DeWert et al., 2003); however, research indicating the program components incorporated, effectiveness of those components, the technological venues utilized and effectiveness of the technological venues employed to deliver the components has not been reported. In addition, research demonstrating online teacher induction program components related to school districts' sizes in which the novice teachers were assigned, the grade level in

which the novice teacher taught and the novice teachers' certification route has also been omitted.

Statement of the Purpose

Online teacher induction programs utilizing available technological venues have been able to diminish the scheduling conflicts, geographic limitations, and cost constraints offering the novice teacher convenient and flexible assistance from an experienced mentor (DeWert et al., 2003). The purpose of this study was to examine the components utilized and the effectiveness of those components in online teacher induction programs designed to assist novice teachers with emotional support and professional development. Further, the study analyzed the technological venues currently utilized to implement components of online teacher induction programs. Additionally, the mentors' perceptions of the effectiveness of the components the technological venues utilized were examined. Mentors' perceptions of component effectiveness was also examined in relation to school districts' sizes in which the novice teachers were assigned, the grade level in which the novice teacher taught and the novice teachers' certification route.

Research Questions

The following questions addressed in this study were:

1. To what extent were emotional support, professional development, formative observation, and reflection components incorporated by online teacher induction programs?

2. What were the mentors' perceptions of the effectiveness of the four components of online teacher induction programs?
3. Which technological venues were utilized to deliver the four components of online teacher induction programs?
4. What were mentors' perceptions of the effectiveness of the technological venues utilized to deliver the four components of online teacher induction programs?
5. Were there statistically significant differences in the mentors' perceptions of the effectiveness of the four components of online teacher induction programs related to school districts' size in which the novice teachers were assigned, the grade levels in which the novice teachers taught and the novice teachers' certification routes?

Significance of the Study

This study provided a synthesis of the components utilized by available online teacher induction programs designed to support novice teachers. The mentor teachers' perceptions of the effectiveness of components incorporated within online teacher induction programs were examined. Additionally, a synthesis of the technological venues utilized was provided. The mentor teachers' perceptions of the effectiveness of the incorporated technological venues were analyzed. The mentor teachers' perceptions professional development, emotional support, reflection, and formative observation components in relation to school districts' sizes in which the novice teachers were assigned, the grade level in which the novice teacher taught, and the novice teachers' certification route were examined. The results of this study

will provide a framework to design and implement comprehensive online teacher induction programs.

Cognitive Apprenticeship

Cognitive apprenticeship established the teacher as the expert to guide the student in the process of undertaking a task that would be too complicated to be accomplished alone (Collins, Brown & Newman, 1989). In the mentoring relationship, the mentor was the expert assisting the novice teacher to become more effective in their classrooms. As described by the theory of situated cognition, novice teachers' learning skills were tied to authentic situations, their classrooms (Brown, Collins & Duguid, 1989).

Cognitive apprenticeship incorporated modeling, coaching, scaffolding; articulation, reflection, exploration, and fading support (Collins et al., 1989; Snyder, Farrell & Baker, 2000). Modeling occurred when novice teachers observed master teachers such as their mentor, another experienced teacher or the presenter of any training of professional development topics (Collins et al., 1989). Experienced teachers or mentors coached novices by offering constructive feedback after observing a lesson (Collins et al., 1989). Mentors have scaffold knowledge providing clear direction by guiding a discussion of issues just beyond the novice teachers' level of understanding to facilitate professional growth (Boreen & Niday, 2000; McKenzie, 2000). This theory was applied in a teacher induction program as novice teachers gained a better understanding of their ordeal when they articulated their experiences as well as ways to apply new skills with other teachers who understood similar challenges. When

formative observations were stressed as opportunities for novice teachers to reflect, then mentors provided constructive feedback for improvement rather than a final critique (Angelle, 2002). With the mentor's guidance, novice teachers explored techniques to improve their teaching. As a novice teachers gained more experience, the mentor's guidance faded with fewer contacts.

Developing knowledge was a process that occurred through participation in communities of practice such as mentoring support groups in the emotional support component of an induction program (Lave & Wenger, 1991/2003). The culture of novice teachers affected how they learned to handle the challenges of teaching. The culture in schools was unknown to novice teachers, while a support group of other novice teachers facing the same challenges created a safe environment in which to learn how to navigate the school culture (Vygotsky, 1978). As they articulated their experiences as well as ways to apply new strategies with their mentor and peers, their skills developed first on a social level as through discussion and then on an individual level through application in their classroom (Vygotsky, 1978). Opportunities to collaborate and share with peers and mentors were available in a network through the "zone of proximal development" (Vygotsky, 1978).

Modeling occurred when novice teachers observed master teachers such as their mentor, another experienced teacher or the presenter of professional development topics within a teacher induction program (Collins et al., 1989). Issues just beyond the novice teachers' level of understanding were presented in the professional development component to facilitate professional growth (Boreen & Niday, 2000). Mentors enabled

novice teachers to scaffold knowledge by providing purpose and direction for the discussion of professional development topics during emotional support group meetings (McKenzie, 2000). Coaching novice teachers after formative observations provided mentors the opportunity to share strategies to assist the novice to become more effective in their classrooms.

Developing knowledge also occurred through participation in communities of practice such as emotional support and conferencing opportunities provided by the formative observation component of an induction program (Lave & Wenger, 1991/ 2003). Through conversations, novice teachers collaborated in a learning communities to analyze ideas, values, and practices (Feiman-Nemser, 2001). Through this activity, participants jointly constructed knowledge (Lave & Wenger, 1991/ 2003). Formative observations were opportunities for novice teachers to reflect on actual lessons, while mentors provided constructive feedback for improvement (Angelle, 2002). A time for conferencing after an observation provided the environment necessary for the “zone of proximal development”. At this time, the more experienced and knowledgeable mentor provided the guidance the novice teacher needed to approach a problem (Cole, 1985). Mentors coached novice teachers by offering feedback after the formative observations in an effort to help them become more effective in their classrooms. Mentors encouraged novice teachers to scaffold knowledge by providing purpose and direction for the discussion to facilitate professional growth (Boren & Niday, 2000; McKenzie, 2000).

The reflection component contributed to the emotional support, professional development, and formative observation components. In the safety of an emotional support group, novice teachers reflected on their experiences as well as with other teachers to develop new skills and apply them in their classroom. A formative observation was one opportunity that novice teachers had to reflect on actual lessons enabling novice teachers to receive guidance from experienced and more knowledgeable mentors (Angelle, 2002; Cole, 1985).

Definitions of Terms

1. Bulletin Board– an asynchronous exchange of text via a website on the Internet.
2. Chats – synchronous communication occurs through the messages that are sent similar to electronic mail but are received and responded to in real time.
3. Emotional Support – the process of communication between a mentor and a novice teacher to provide personal support.
4. Face-to-face meeting two or more people meeting physically
5. Formative observation –data collected during an observation of the novice teacher for the purpose of providing feedback regarding instruction to encourage the novice teachers’ professional development and reflection.
6. Induction – process of introducing novice teachers to the teaching profession.
7. Induction program– a program designed specifically to provide emotional support and opportunities for novice teachers to develop professionally.
8. Mentor – an experienced teacher assigned to consistently provide emotional and /or professional support through communicating with a novice teacher.

9. Mentoring – the process of communication between a mentor and a novice teacher to provide emotional support.
10. Novice teacher– a beginning teacher with 0-2 years of experience as the teacher of record.
11. Online communication – any exchange of information over the Internet including email, listservs, chats, bulletin boards, video conferencing, etc.
12. Online induction - The process of sharing ideas and information via the Internet among experienced educators and novice teachers for the purpose of questioning, reflecting, and improving classroom experiences for both teachers and students (Novice Teacher Support Project [NTSP], 2002). Also known in literature as online mentoring, electronic mentoring, e-mentoring, telementoring, and cybermentoring.
13. Professional development – training provided to novice teachers to improve existing teaching abilities.
14. Reflection – novice teachers’ consideration of experiences in their classrooms or related to their teaching instructional practice.
15. Support program – a program designed to specifically support novice teachers emotionally and/or professionally thru the utilization of some technology.
16. Video conferencing – a broadcast synchronous connection between people at different locations.
17. Video streaming – communication occurs when moving images are viewed immediately as they are sent.

Assumptions

The assumptions of this study are:

1. The responses are honest and unbiased.
2. Participants are representative of the mentors participating in an online induction program.

Limitations of the Study

The limitations of this study are:

1. A small number of online induction programs are currently in operation.
2. The sample does not represent a specific geographic area.
3. These participants voluntarily chose to be a part of an online induction program, rather than having been randomly selected to participate.
4. Participants reported their personal perceptions of program components and the technological venues utilized.
5. Participants' perceptions of components omitted from the program in which they participate may influence their views of the components' value.
6. The programs that have been identified may lack identical components or a combination of components.

Summary

This chapter discussed the need for teacher induction programs to increase the retention rate of teachers. Further, the benefits of offering emotional support and the opportunities to develop professionally through online teacher induction programs were examined. Previous studies have addressed the availability and effectiveness of face-to-

face teacher induction programs as well as the specific components incorporated; however, few studies have examined the components of online teacher induction programs and the utilized technological venues. Additionally, research has failed to analyze the effectiveness of the implemented components and technological venues employed for delivery.

CHAPTER II

REVIEW OF LITERATURE

Initially novice teachers have strived to incorporate a variety of instructional practices; however, they have regressed and relied on survival strategies after the first few months of their beginning year (Moir, 1999). Some of which have been inappropriate for a diverse student population (Stanulis, Fallona & Pearson, 2002). Novice teachers have needed assistance when they entered the field of teaching to remain in the profession and become effective teachers (Gold, 1996; Howey & Zimpher, 1991; Moir, 1999; RNT, 1999). Teacher induction programs have incorporated several components based on learning theory that support novice teachers as they embark on a career in education. Technological advances have provided access and support to teachers previously isolated due to scheduling conflicts, geographic limitations, and cost constraints (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001).

Attrition

In 1983, the attrition rate of novice teachers was first determined to be 50 percent within the first seven years of beginning their teaching career (Schlechy & Vance, 1983). Ten years later, Odell and Ferraro (1992) reported that one-third of novice teachers were leaving within two years of beginning their educational career. However, 18 years after Schlechy and Vance's initial study in 1983, 45 percent of novice teachers have been documented as leaving the education profession within the first five years of beginning their career (Ingersoll, 2001; NCTAF, 2003). NCES (1998) reported that 9.3 percent of

public school teachers left within their first year of teaching, while over 20 percent of the teachers ceased teaching within three years and an additional 30 percent resigned from the profession within five years (Delgado, 1999; Darling-Hammond, 1999). The number of teachers abandoning the teaching profession has continued at a similar rate for the last 20 years.

In the past 14 years, the demand for teachers in the United States and other countries has risen steeply (Sinsialio, 2002). Student enrollment in the United States has been projected to reach 54.3 million by 2007, which includes 4.3 million more students than those enrolled in 1995 (Texas State Board for Educator Certification Panel [SBEC], 1998). An estimated two million more teachers will be needed by 2012 to teach this growing student population (NCTAF, 2003). Additionally, the number of students representing diverse populations in public schools has also increased, which contributes to the growing need for highly qualified teachers (Henke et al., 2000). According to Strong (2004), the need for additional teachers should be re-elevated to a high priority based on the previous studies.

The need for teachers has been compounded by the number of teachers anticipating retirement (NCTAF, 2003). Baby boomers, who make up 30-50 percent of the teaching population, are now in their fifties and will soon retire (Darling-Hammond, 2000; Strong, 2004). In California, 10 percent of the teachers employed in K-12 schools are expected to retire within the next 10 years (NCTAF, 2003). The combination of the percentage of novice teachers leaving the profession, a growing student population and the percentage of teachers retiring has resulted in a teacher shortage (Darling-Hammond,

2000; Darling-Hammond & Sykes, 2003; Ingersoll, 2001; NCTAF, 2003; SBEC, 1998). Further, according to Norton (1999), the field of education has been losing its talented teachers who complete their certification requirements.

Additionally, Ingersoll (2001) determined the greatest shortages of novice teachers were found in urban as well as rural districts (Shields et al., 2003). Urban and rural districts were often forced to hire uncertified teachers to fill teaching positions (Foster, 2004). Annually, 50,000 uncertified teachers have been concentrated in urban and rural districts (Foster, 2004; NCTAF, 2000).

Urban schools have struggled to recruit and retain teachers (Foster, 2004; RNT, 2000). The highest teacher departure rate, 20 percent, was found in urban schools (Feiman-Nemser, 2001; Foster 2004; Ingersoll, 2001; NCTAF, 2003). Newly hired teachers in urban districts were more likely to be novice teachers or teachers with less than five years of experience (Henke et al., 2000; Justice, Greiner & Anderson, 2003; NCES, 1996; SBEC, 1998; Zumwalt & Craig, 2005). A high population of underserved students were more likely to have a succession of inexperienced novice teachers throughout their educational career; thereby resulting in the students failing to achieve academically (Darling-Hammond & Sykes, 2003; SBEC, 1998).

According to Marchak and Klotz (2002), teachers were an asset to which time and resources were invested. In industry, an ineffective employee has cost as much as two and a half times the employee's initial salary in recruitment cost, personnel costs, and lost productivity (RNT, 1998). However, when a teacher left the education profession during their initial years, the loss has cost the taxpayers more than \$50,000

per teacher (SBEC, 1998). In Texas, if a district loses six percent of 1,000 teachers, or 60 teachers, with a salary of \$25,000 a year, the district would have to spend an additional \$375,000 to replace them (Norton, 1999). In Texas, the total teacher turnover can cost as much as \$300 million per year (Norton, 1999).

With each completed year of teaching, a teacher becomes more experienced and effective in the classroom (SBEC, 1998). As a result of teachers exiting the profession, the student population has lost the knowledge and expertise of an experienced teacher (Ettorre, 1997). The difference in standardized test scores of the students assigned to novice teachers and those assigned experience teachers demonstrated a greater difference, than the variance due to other teacher characteristics (SBEC, 1998).

According to Merrow (1999), an adequate number of teachers have graduated with an education degree to fill the available teaching positions. However, retaining novice teachers, so that they gain enough expertise to become effective teachers, has become a challenge. RNT (2000) found that the loss of one third of novice teachers within the first three years of their career negatively affected student achievement in urban schools.

Issues Faced by Novice Teachers

Novice teachers have traditionally been given challenging teaching assignments (Norton, 1999). These assignments included teaching classes outside their teaching field and assignments to under-funded schools or to classes with students who have been perceived as difficult to teach (Claycomb, 2000; Darling-Hammond & Sykes, 2003; NCTAF, 2003; Norton, 1999). These assignments have sabotaged their chances for

success in the classroom (Norton, 1999). According to Ingersoll (2001), teachers left teaching due to inadequate administrative support, poor working conditions, and low compensation. The issues prompting novice teachers' exodus have been well documented (Bartell, 2005; Conway, Hansen, Schulz, Stimson & Wozniak-Reese, 2004; Ingersoll, 2001, 2002; Justice et al., 2003; McCann et al., 2005; Patterson, Roehrig & Luft, 2003). These issues could be categorized as a mismatch of the culture between the students representing diverse cultures and the novice teacher and the isolation of teaching (Bartell, 2005; Boreen & Niday, 2000; Conway et al., 2004; Hertzog, 2002; Ingersoll, 2001, 2002; Ingersoll & Kralik, 2004; Justice et al., 2003; McCann et al., 2005).

While novice teachers have faced these issues, they also have had the same responsibilities of more experienced teachers. Novice teachers have had two jobs as they began their career; to teach and to learn to teach (Feiman-Nemser, 2001) students representing diverse cultures (Banks, 2001; Carter, 2003a, 2003b; Carter, Gayles-Felton, Hilliard & Vold, 1999; Carter & Larke, 1995, 2003; Larke, 1992).

Cultural Mismatch

The number of students representing diverse populations has continued to increase; thereby contributing to the growing need for teachers (Henke et al., 2000). According to NCES (2003), schools with the highest percentages of minority and limited-English proficient students have employed more teachers with less than three years of experience. Novice teachers have struggled to communicate with students due to language and cultural barriers (Gold & Roth, 1993). The majority of the teachers

employed in urban schools often fail to reflect the culture of their students. This situation has resulted in a cultural mismatch of students' and teachers' heritage (Delpit, 1995; Hodgkinson, 2002; Kalyanpur & Harry, 1999). Due to the gap between the 89 percent European American, middle-class, teaching force (NCES, 1997) and the students of color, high poverty, and speakers of native languages (Villegas & Lucas, 2002), novice teachers felt unprepared to address the personal, cultural, and academic needs of students representing different cultures from their own (Banks, 2001; Carter, 2003a, 2003b; Carter et al., 1999; Carter & Larke, 1995, 2003; Gay & Howard, 2000; Larke, 1992). Due to this cultural mismatch, novice teachers struggled with classroom management, classroom organization, relations with parents and the community, student motivation, students' individual differences, designing relevant lessons using culturally relevant strategies, and accessing sufficient facilities and resources (Bartell, 2005; Conway et al., 2004; Fideler & Haselkorn, 1999; Gay, 2000; Hertzog, 2002; Patterson, Roehrig & Luft, 2003).

A study conducted by the NCES (1999), surveyed 4,000 novice teachers in which 80 percent felt ill-prepared to work with students from diverse cultures. Novice teachers struggled to determine appropriate methods for managing their classrooms (Gold & Roth, 1993). According to Justice et al. (2003), novice teachers reported that they lacked effective classroom management skills. In an effort to manage large classrooms of students (Justice et al., 2003), novice teachers implemented strategies that were inappropriate and unsuccessful for students they teach (Stanulis et al., 2002).

Classroom organization became more challenging when insufficient facilities and resources were encountered (Veenman, 1984). When schools lacked a sufficient number of classrooms, novice teachers were forced to travel from classroom to classroom transporting the necessary instructional materials throughout the school day (Bartell, 2005; Ingersoll, 1999; Veenman, 1984). An inadequate amount of materials and supplies necessary to organize and teach has resulted when urban districts competed for teachers using higher salaries (Darling-Hammond & Sykes, 2003; NCTAF, 2003). The lack of sufficient materials and supplies limited novice teachers' use of appropriate strategies proven to be successful with students representing diverse populations novice teachers incorporated (Ganzer, 2001; Kent, 2000, Odell & Ferraro, 1992).

Since the majority of novice teachers have lacked cultural knowledge of their students, they have been challenged when communicating with parents and community members (Delpit, 1995; Gold & Roth, 1993; Hodgkinson, 2002; Kalyanpur & Harry, 1999). The students and their parents representing different cultures often speak a different language; thereby, presenting a communication barrier (Villegas & Lucas, 2002). Novice teachers felt unprepared to communicate with parents regarding the academic needs of their students representing diverse cultures (Byrnes & Kiger, 1996; Foster, 2004; Gold & Roth, 1998; Weiner, 1999).

When novice teachers struggle with classroom management or classroom organization, they tended to implement inappropriate strategies when teaching a diverse student population (Ganzer, 2000; Veenman, 1984). The utilized strategies tended to be teacher survival strategies, rather than research-based strategies that address different

learning styles (Bartell, 2005). Novice teachers struggled to implement appropriate pedagogical practices that improved the academic progress of an increasing number of diverse students to understand the content presented (Gold & Roth, 1993; Henke et al., 2000).

Isolation

According to Guyton and Hidalgo (1995), novice teachers were often isolated from the experienced teachers on the same campus (Britzman, 1986). Since novice teachers recently received their degrees, they were unlikely to ask experienced teachers for help (Halford, 1999). They felt that they have previously acquired the necessary knowledge to teach effectively (Merseeth, 1991). Experienced teachers often hesitated to interfere and offer assistance; thus, resulting in a double barrier to assistance (Huling-Austin, 1986).

The research-based teaching ideas learned in undergraduate coursework have become overshadowed by cultural mismatch, and isolation (Bartell, 2005; Conway et al., 2004; Ingersoll & Kralik, 2004; McCann et al., 2005; Patterson et al., 2003). Novice teachers either reverted to the ways they were taught or followed the more experienced teachers' plans and methods which failed to address learning styles of students representing diverse cultures (Ballantyne & Hansford, 1995; Roth & Tobin, 2002; Stanulis et al., 2002). Therefore, novice teachers felt isolated and resorted to less effective strategies in an effort to survive (Holt-Reynolds, 1995).

Teaching is a "highly personal" or an individualized experience (Feiman-Nemser, 2001 p. 1033) that occurs out of others' sights (Little, 1990). Even though

urban districts have employed large numbers of teachers, the district size, the number of people hired and the total number of district employees have contributed to a feeling of isolation. Novice teachers have felt insignificant when working within a large pool of teachers (Freiberg, Zbikowski & Ganser, 1994).

The challenges faced by novice teachers have been magnified if they were hired to teach in a rural school (Collins, 1999). Collins (1999), Henson and Shapiro (1999) reported that novice teachers teaching in rural schools experienced feelings of isolation. These novice teachers lacked personal support systems when they were assigned to schools located in rural communities (Collins, 1999; Henson & Shapiro, 1999).

Small districts have hired few novice teachers annually. Mentors, who volunteered to assist novice teachers, were often too busy completing additional responsibilities (Hersh, Stroot & Snyder, 1993). Furthermore, fewer mentors were available within the same subject area in small schools (Geringer, 2000).

Previously, novice teachers were unable to access a mentoring program in both rural or urban districts (Collins, 1999). Due to lack of funding and mentoring expertise, novice teachers in these districts failed receiving necessary support and assistance (Collins, 1999; Henson & Shapiro, 1999). Therefore, novice teachers teaching in rural and urban districts have reaped the benefits of an online mentoring or teacher induction program (DeWert et al., 2003).

As a result of a teacher leaving the profession, the school has lost the knowledge and expertise of an experienced teacher (Ettorre, 1997). With each year of experience, a teacher became more effective in the classroom (SBEC, 1998). The difference in

standardized test scores of the students assigned to novice teachers and those assigned to experience teachers demonstrated a greater difference than the variance due to other factors including teacher characteristics (SBEC, 1998). Retaining novice teachers so that they gain expertise has become a challenge (Merrow, 1999).

Retention

According to Strong (2004), providing high quality teacher induction programs to support novice teachers as they grow and overcome the challenges of the classroom has been more advantageous than hiring new staff each year. Research indicated that induction positively affects the retention rate and teacher quality (Bartell, 2005; Darling-Hammond, 2005; Grant, 1989; Ingersoll & Smith, 2004; Moon Merchant & Carter, 2004).

Fideler and Haselkorn (1999) examined urban teacher induction programs across the nation. They found that 57 percent of the programs reported a retention rate of 90 to 100 percent; 12 percent indicated an 80 to 89 percent retention rate, while five percent recorded a 70 to 79 percent retention rate. The median retention rate of the surveyed urban teacher induction programs was 93 percent (Fideler & Haselkorn, 1999). However, the national average of attrition was 9.3 percent within the first year of teaching (Fideler & Haselkorn, 1999). Programs designed to meet the needs of entering teachers have been reported to increase retention rates from 50 to 85 percent (Lemke, 1995; Norton, 1999).

Smith and Ingersoll (2004) found that providing opportunities to collaborate within a teacher induction program reduced the risk of novice teachers leaving the

profession by 43 percent. When novice teachers were provided an opportunity to participate in an external network, the chances of the novice teachers leaving were reduced by 33 percent (Smith & Ingersoll, 2004). Odell and Ferraro (1992) followed two cohorts of novice teachers for four years after their induction year. Of the 160 teachers who participated in a teacher induction program, 141 (or 96 percent) of the teachers were located after four years. Assuming that the teachers who were missing had left the teaching profession, the retention rate for the two cohorts was 84 percent (Odell & Ferraro, 1992).

Fuller (2003) compared the retention rate of novice teachers who were provided support in Texas public schools with the retention of novice teachers, who failed to receive support during their first year of teaching. After the first year, the retention rate of novice teachers provided support was 89.2 percent, while the retention rate of novice teachers without support provided was 80.3 percent. The retention rates for novice teachers with and without support showed a greater difference the second year. The retention rate for teachers provided support was 84.4 percent, while the retention rate for teachers without support was only 75.4 percent (Fuller, 2003).

A university-based teacher induction program followed three cohorts for five years. After five years, the first cohort's retention rate was 100 percent; the second cohort's retention rate was 94 percent, while the third cohort's retention rate was also 100 percent (Moon Merchant, 1998). The affect of supporting novice teachers has been shown to positively relate to teacher retention (Smith & Ingersoll, 2004).

Issues Addressed by Teacher Induction Programs

As the student population has continued to grow, the diversity of the student population has continued to increase (Cetron & Cetron, 2004). Novice teachers assigned to challenging teaching situations need opportunities to enhance their teaching competence (Foster, 2004). According to Cetron and Cetron (2004), appropriate strategies to overcome traditional achievement gaps have been needed by novice and in-service teachers. Challenges faced by novice teachers were minimized through collaboration and cooperation available through opportunities provided by teacher induction programs (Stalling & Quinn, 1991). Furthermore, induction has also been shown to positively influence personal and professional growth (Ayers & Griffin, 2005). When novice teachers received emotional and instructional support during their first year of teaching, their instructional effectiveness improved (Veenman & Denessen, 2001).

Addressing Cultural Mismatch

According to RNT (1999), 92 to 96 percent of novice teachers, who participated in a teacher induction program designed to support them during their first year of teaching, experienced improved knowledge of teaching and skills, enhanced performance and increased self-confidence to teach diverse students. These improvements assisted them in confronting classroom challenges by applying learning theories to their practice (RNT, 1999). With this help, novice teachers focused more on utilizing instructional strategies and less on classroom management issues that addressed the personal, cultural and academic needs of students representing diverse cultures (Byrnes & Kiger, 1996; Foster, 2004; Stroot, et al., 1999). Induction teachers, supported

by teacher induction programs, demonstrated improved classroom management, lesson planning and better communication resulting in improved classroom discussions through the application of varied instructional practices (Bartell, 2005; Darling-Hammond, 2001, 2005; Moon Merchant & Carter, 2004; Nugent & Faucette, 2004; Villar, 2004). When novice teachers accessed sustained learning opportunities, they utilized appropriate strategies that met the needs of diverse students (Ball & Cohen, 1999). Further, Darling-Hammond and McLaughlin (1995) reported novice teachers supported by teacher induction programs developed interpersonal relationship with their students.

Hersh et al. (1993) surveyed novice teachers who had participated in a teacher induction program that provided a college facilitator and an on-campus mentor. The results of the study indicated that the novice teachers believed that their classroom management skills had improved as well as their classroom instruction; thus, increasing confidence in their ability to teach. Novice teachers also reported that the program enabled them to adapt to the school culture (Hersh et al., 1993). Teacher induction programs provided personal support and introductions to the school system's norms and procedures (Fideler & Haselkorn, 1999). As a result, novice teachers felt they belonged; thus, participating in a teacher induction program decreased feelings of isolation (Hersh et al., 1993).

The results of novice teachers participating in a teacher induction program exhibited an increase in teacher instructional skills and strategies to teach a diverse student population (Fideler & Haselkorn, 1999). With support, novice teachers experience improved classroom organization and classroom management, thus enabling

them to focus on appropriate instructional strategies (Schaffer, Stringfield, & Wolfe, 1992). When novice teachers felt supported and concentrated on instruction, their competence, performance and effectiveness improved (Howey & Zimpher, 1991; NCTAF, 1996).

Darling Hammond (1999) found that the support of a high quality mentor also affected the attrition rate of novice teachers, while also resulting in significant student achievement gains. These gains were experienced regardless of the students' socio-economic status or culture (Darling-Hammond, 1999). The impact a high quality teacher made on student achievement was greater than any other teacher characteristics (Darling-Hammond 1999, SBEC, 1998). By improving teaching performance and promoting professionalism (Howey & Zimpher, 1991; NCTAF, 1996), teacher induction programs have reduced attrition and facilitated the successful entry of novice teachers into the teaching profession (Darling-Hammond, 2005; Grant, 1989; Haberman, 2000; Ingersoll & Smith, 2004; Moon Merchant & Carter, 2004; Wojnowski, Bellamy & Cooke, 2003).

Addressing Isolation

The collegial collaboration that novice teachers have experienced in teacher induction programs addressed feelings of isolation (Lemke, 1994). These activities included peers engaged in planning lessons for student involvement, discussing classroom challenges, and providing opportunities to reflect (Arends & Regazio-DiGilio, 2000; Canning, 1991; Kyed, Marlow, Miller, Owens & Sorenson, 2003), received advice

and participated in professional development through an external network (Foster, 2004; Schon, 1987).

Saban (2002) examined an elementary teacher induction program that assisted novice teachers hired to teach in a Turkish private school. Data were collected through structured interviews. Additional information was gathered through other conversations. Novice teachers described the program as a bridge between student teaching and becoming the teacher of record (Saban, 2002). This study also reported that experienced teachers shared their repertoire of practical teaching strategies with the novice teachers (Saban, 2002). Communication between novice and mentor teachers combated the feelings of loneliness and isolation (Lemke, 1994) that are intensified by the lack of a personal support system (Henson & Shapiro, 1999). Mentored teaching was seen as a catalyst for the professional and personal growth of novice teachers (Saban, 2002).

Freiberg et al. (1994) studied a teacher induction program designed to support novice teachers working in large urban districts. In data collected through surveys, focus groups and structured interviews, Freiberg et al. (1994) found that novice teachers hired in large urban districts experienced feelings of isolation. The district's size, the large number of people hired each year and total number of employees appeared to increase novice teachers' feelings of insignificance when working in large school districts (Freiberg et al., 1994). According to Freiberg et al. (1994), the participation of novice teachers in this program enabled them to realize asking for help was acceptable (Saban, 2002). Novice teachers often relied on experienced teachers for class materials and information, such as the locations of materials and resources. Mentors' assistance also

consisted of providing encouragement and modeling appropriate teaching strategies. Mentors also provided information to assist novice teachers to reflect on instructional strategies (Freiberg et al., 1994). These strategies appeared to address the isolation of novice teachers.

A smaller qualitative study was conducted with seven novice teachers participating in a teacher induction program designed as an internship program (Jorissen, 2002). Interviews and an open-ended questionnaire were utilized to collect data. The data collected indicated that novice teachers felt that the emotional support they received affirmed and encouraged them. They worked together on curricular issues and lesson plans. Novice teachers then discussed and reflected on the lesson's implementation. Jorissen (2002) found that such a program enabled novice teachers to become more confident employing appropriate instructional strategies when teaching in their classrooms; thus, increasing job satisfaction, while decreasing feelings of having to struggle in isolation (Bartell, 2005; Babinski & Rogers, 1998; Villar, 2004). Consequently, these teachers remained in the teaching profession regardless of the school's culture in which the novice teachers were assigned (Jorissen, 2002).

Collaboration between novice teachers and experienced teachers enhanced the learning of participating novice teachers (Foster, 2004). According to Haberman (1995), novice teachers assigned to urban schools grow professionally if given opportunities to associate with "star teachers" (p. 2). Assistance and reflection enabled novice teachers to develop the characteristics of a star teacher (Haberman, 1995). According to Haberman (1995), these teachers persisted to engage their students in the learning

process by focusing on the individuals. As novice teachers reflected upon the instructional practices needed to teach diverse students, knowledgeable mentors guided them to meet the needs of these students through the use of culturally responsive pedagogy (Gay, 2000; Smolkin & Suina, 1994). When novice teachers collaborate with other teachers to solve problems, they become empowered to successfully teach students with diverse backgrounds (Guyton & Hildalgo, 1995). Therefore, resilient teachers develop high expectations for their students and continually support them as they learn. However, finding appropriate strategies to implement can be challenging (Irvine, 2003). Often strategies would be more creative and challenging thus motivating the students (Fideler & Haselkorn, 1999; Irvine, 2003; Matus, 1999). Teachers, who motivate students to learn, tend to remain in the profession longer (Irvine, 2003).

An effective teacher induction program prevents novice teachers from abandoning the teaching profession and allows them to focus on teaching and learning, rather than on classroom management issues (Fiemen-Nemser, 2001). Emotionally supporting novice teachers, as well as providing them with professional development opportunities, further enabled them to grow and become resilient teachers needed in urban schools (N. Carter, personal communication, September 29, 2001; Griffin, Wohlstetter & Bharadwaja, 2001; Schon, 1987). These teachers' confidence in their abilities to teach motivated them to continue seeking solutions to problems encountered in the classroom (Irvine, 2003; Joeger & Bremer, 2001; Nugent & Faucette, 2004; Odell & Ferraro, 1992).

Engaging in teacher induction programs enabled novice teachers to collaborate and network with peers and experienced teachers; thereby alleviating the feelings of isolation and abandonment (Boreen & Niday, 2000; Cooper & Morey, 1989). Being involved in a teacher induction program that employs positive and encouraging mentors affected and increased the professional growth of novice teachers (Clark, 2001). Through support from peers, mentors, and experienced teachers, novice teachers began to construct instructional knowledge (DeWert et al., 2003).

Teacher Induction Programs' Components

Teacher induction programs have consisted of activities that range from a single orientation meeting at the beginning of the year to multiple activities designed specifically to support novice teachers emotionally and professionally (Smith & Ingersoll, 2004). Villegas and Clewell (1998) examined 27 programs that included collaboration, social support and professional development components. The retention rate of the five cohorts involved in these programs ranged from 79 percent to 95 percent. The cohorts of alternatively certified novice teachers had initial retention rates of 79 percent. After the programs had been in operation for a few years, the retention rate increased to 94 percent. Paraprofessional retention rates increased from 80 percent to 95 percent. The overall average retention rate of all cohorts was 87 percent (Villegas & Clewell, 1998).

Smith & Ingersoll (2004) found that 80 percent of 3,235 novice teachers were involved in teacher induction programs. Eighty-one percent included emotional support, 68 percent provided opportunities to collaborate with other novice teachers, while 62

percent of these programs included professional development seminars and 17 percent encouraged an external network of teachers. These program components were designed to assist novice teachers facing the issues prevalent during their first year of teaching.

According to Gray and Gray (1985), the components of a teacher induction program should have included purposefully selecting mentors and novice teacher partners, providing necessary training for the mentor, supplying the novice with professional development and conducting formative observations. According to Moir and Gless (2002), the essential components of a quality teacher induction program were mentoring and professional development, while Fideler and Haselkorn (1999) reported that surveyed programs consisted of orientation meetings, mentoring, and professional development sessions. Heath-Camps (1992) study revealed that mentoring, peer support groups, professional development and opportunities for reflection on instructional strategies were important teacher induction program components. Effective teacher induction programs combined novice teacher support, professional development as well as assessment (Feiman-Nemser, 2001).

When Smith and Ingersoll (2004) examined the components of teacher induction programs, individual components failed to impact teacher turnover significantly. However, when combined components were implemented within a teacher induction program, the effect was significant. The results indicated more components that were combined, the greater the result (Smith & Ingersoll, 2004). The combination of components included professional development workshops, emotional support, collaboration orientation seminars and mentoring (Smith & Ingersoll, 2004).

Emotional Support Component

The majority of the teacher induction programs designed to assist novice teachers emphasize mentoring. Mentoring has referred to the communication between a mentor and novice teacher that provided emotional support and professional guidance. In a mentoring study, Ayers and Griffin (2005) found that the role of mentoring was filled by multiple people such as a group of peers, an experienced teacher and administrator. A community of peers that collaborated provided the support of a mentoring relationship (Ayers & Griffin, 2005). Novice teachers needed personal and emotional support from peers and more experienced teachers as they embark on their first year of teaching (Feiman-Nemser, Carver, Schwille & Yusko, 1999; Giebelhaus & Bendixen-Noe, 2000). They have also needed ongoing opportunities to discuss and examine issues confronted. During these mentor-novice teacher sessions, novice teachers shared uncertainties and requested assistance (Feiman-Nemser, 2001). Researchers reported that the emotional support component was essential (Arends & Regazio-DiGilio, 2000; Huling-Austin, 1989). Through conversations, novice teachers collaborated in learning communities to analyze ideas, values, and practices (Feiman-Nemser, 2001). Through this activity, participants jointly constructed knowledge (Lave & Wenger, 1991/2003).

The environment surrounding novice teachers affected how they learned to assume their initial teaching duties. While the schools' culture was unfamiliar to novice teachers, teacher induction programs' goals included creating a safe environment in which the novice teacher learned to navigate the school culture (Horn, Sterling & Subhan, 2002; Vygotsky, 1978). They gained a better understanding of their role as a

teacher when they collaborated with other novice teachers who traveled the same course with the same challenges. Through group discussions, novice teachers shared concerns. As new ideas were learned, they individually applied these skills within their classrooms (Vygotsky, 1978).

Vygotsky's (1978) socio-cultural theory defined this activity as social interaction. The individual learned from others participating in the groups who have experienced similar issues (Vygotsky, 1978). These groups were described as communities of learners (Lave, 1996; Lave & Wenger, 1991/2003). Further, within the mentor-novice teacher relationship, the mentor, or expert, assisted the novice teacher toward becoming more effective in their classroom. As reported by Lave and Wenger (1991/2003) when describing cognitive apprenticeship, novice teachers began on the periphery of a group. As more skills were learned and novice teachers shared their experiences, they became more skilled. As they experienced this growth, they moved toward the center of the group. In time, they became an expert and the mentor's support was faded (Snyder et al., 2000). As described in the cognitive apprenticeship of the situated cognitive theory, novice teachers learned skills related to authentic situations, their classrooms (Brown et al., 1989).

Meyer (2002) conducted a qualitative study examining the benefits novice teachers experienced by participating in learning communities. After conducting interviews, observations, and collecting additional documentation, Meyer (2002) concluded that participation in learning communities enabled novice teachers to combat feelings of isolation (Boreen & Niday, 2000; Cooper & Morey, 1989; Meyer, 2002).

Further, Meyer (2002) reported that novice teachers desired to find an environment in which they felt safe to discuss and reflect on issues (Meyer, 2002).

Providing a mentor has been described as the most important component of a teacher induction program (Clark, 2001; Gray & Gray, 1985; Moir & Gless, 2002; Paese, 1990). Often interactions between the mentor and the novice teacher served as a catalyst to facilitate the novice teachers' emotional and professional development (Clark, 2001). A trained mentor enhanced novice teachers' instructional practice (Villar, 2004). Novice teachers' skills developed first on a social level as they discussed applications of new skills in a learning community then at an individual level (Vygotsky, 1978). Within peer support, DeWert et al. (2003) reported novice teachers' self-constructed knowledge needed to implement appropriate strategies. However, personal and emotional support, as a single component, failed to demonstrate a direct relationship to teaching performance (Smith & Ingersoll, 2004). Stansbury and Zimmerman (2000) found that emotional support met the novice teachers' needs and encouraged them to remain in the profession; thus, allowing them to become more effective as experience was gained.

Emotional support provided by teacher induction programs through peers and mentors appeared to be an important component in novice teachers' development. Novice teachers learned through purposeful, ongoing conversations within learning communities (Feiman-Nemser, 2001). This component formalized collegial support and decreases isolation (Guyton & Hidalgo, 1995). To be effective, emotional support is provided throughout the initial year of teaching (McCann et al., 2005).

Professional Development Component

Emotional support alone failed to meet the goals of improved teacher quality and teacher retention (Freedman, 1992). Effective mentoring emphasized professional development that enabled novice teachers to enhance their existing skills and mature as professionals (Clark, 2001). According to Darling-Hammond (1999), “an effective teacher was one who learned from teaching rather than one who was finished learning how to teach” (p. 3). Professional development was structured to provide purposeful assistance in instructional practices for novice teachers (Cooper & Morey, 1989) enabling them to develop as professional teachers (Clark, 2001).

Mentors

Thies-Sprinthall (1986) viewed teacher induction programs as flawed when structured mentor training was absent. Without training in mentoring and coaching, mentors were unable to effectively assist novice teachers (Single & Muller, 2001). Purposeful instructional assistance for novice teachers was an integral element of professional development (Cooper & Morey, 1989). Mentoring alone failed to meet the goals of improved teacher quality and teacher retention without adequate planning including mentor training (Freedman, 1992). Mentor training described and demonstrated the principles of effective teaching strategies (Little, 1990). Mentor training also presented methods for developing a rapport of trust over distances (Single & Muller, 1999). Trained mentors were able to guide novice teachers as they addressed the concerns and challenges in their classroom (DeWert et al., 2003). Utilizing trained

mentors within the structure of a teacher induction program, novice teachers were better prepared to teach the diverse students population of their classrooms (Murray, 1991).

In addition to training focused on teaching strategies, trained mentors also supported and assisted the novice teachers as they instructed classrooms of students representing diverse populations (Larke, Patitu, Webb-Johnson & Young-Hawkins, 1999). Knowledgeable mentors guided novice teachers in reflecting as they learned to meet the needs of a diverse student population (Smolkin & Suina, 1994).

Novice Teachers

Novice teachers, assigned to urban schools during their first year of teaching, were provided fewer opportunities to participate in high quality professional development (Foster, 2004). Due to their limited teaching experiences, novice teachers began with low levels of pedagogical content knowledge (Shulman, 1987). Professional development designed specifically for novice teachers provided a good foundation to develop instructional strategies and skills (Fideler & Haselkorn, 1999; Johnston, 1985; Lemke, 1994). As novice teachers gained knowledge and skills, positive attitudes toward teaching results (Fideler & Haselkorn, 1999; Johnston, 1985; Lemke, 1994).

According to Joyce and Showers (2002), incorporating modeling, practice, feedback and coaching assisted in developing novice teachers professionally. As novice teachers participated in a teacher induction program, they moved from the beginning state of cognitive apprenticeship to the final stage of fading support through modeling, coaching, scaffolding, articulation, reflection, exploration and fading support (Collins et al., 1989; Snyder et al., 2000). Cognitive apprenticeship established the mentor as the

expert to guide the novice teacher in the process of undertaking a task that was too complicated to be completed alone (Collins et al., 1989).

A cohort of alternatively certified teachers completed a questionnaire with open-ended questions (Jorissen, 2002). The data collected were used to determine the factors contributing to novice teachers' feelings of emotional and instructional support. The cohort was previously engaged in a structured plan to develop professionally (Jorissen, 2002). After an examination of the data, Jorissen (2002) concluded that collegial relationships developed as a result of professional integration of discourse, ground in content. Therefore, they appeared to develop a deeper knowledge of content knowledge and curriculum. Further, they refined their instructional repertoire to include effective classroom strategies for students representing diverse populations (Feiman-Nemser, 2001). Novice teachers learned when they were situated in context; knowledge and skills were applied in their classroom.

In a teacher induction program, a mentor facilitated the novice teachers' learning by modeling instruction and guiding conversations so they articulated and practiced what they learned (Kerka, 1998). Meaningful staff development addressed the specific challenges of novice teachers, which enhanced their instructional practices (McCann et al., 2005). With instructional support, novice teacher were more likely to remain in the profession of education (Yee, 1990).

Formative Observation Component

In addition to emotional support and professional development, researchers found that some teacher induction programs required a form of assessment (Dagenais,

1996; Lemke, 1994). Angelle (2002) stressed that formative observations were used as an opportunity to provide constructive feedback on instructional practice. This assisted novice teachers to gradually improve their instructional practice, rather than be used as a summative evaluation.

Time to observe modeled research-based teaching practices and discuss them with their peers increased the novice teachers' knowledge of pedagogy (Marshak & Klotz, 2002). However, novice teachers in urban districts had few opportunities to observe effective teachers due to teacher turnover and fewer experienced teachers (Foster, 2004; Haberman, 2002). Fideler and Haselkorn (1999) found that novice teachers, involved in teacher induction programs, were encouraged to observe experienced teachers in the same building, in a different school or as a demonstration by their mentors. After conducting an observation, McCann et al. (2005) reported that mentors engaged novice teachers in professional conversations encouraging novice teachers to reflect on the implemented instructional strategies to support the professional growth.

In a study conducted by Angelle (2002), the experiences of novice teachers placed in middle school settings were examined through interviews with principals, mentors and novice teachers. Formative observations of novice teachers in their classrooms were also analyzed. Angelle (2002) concluded that both the mentor's formative observations of novice teachers and novice teachers' observations of experienced teachers were beneficial. Novice teachers employed at effective schools were observed and received constructive suggestions to enhance their instructional

practices (Angelle, 2002). While observing experienced teachers, novice teachers developed a repertoire of strategies for use in their classroom (Angelle, 2002).

However, after formative observations at the less effective school, novice teachers were only given positive feedback rather than a constructive critique (Angelle, 2002). Novice teachers at the effective schools appreciated the opportunity to reflect on the data gathered from formative observations (Angelle, 2002). Periodic observations allowed the observer to encourage the novice teacher by emphasizing their strengths, while also providing suggestions for enhancement of their instructional skills (Degenais, 1996; Lemke, 1994).

Harrison (2001) examined two cohorts of novice teachers who had participated in teacher induction programs. One cohort consisted of 170 novice teachers, while the other numbered 145. A semi-structured questionnaire collected data regarding the novice teachers' experiences in the teacher induction program with formative observations. The results indicated that novice teachers, who had opportunities to participate in a teacher induction program that included formative observations, shared a more positive induction experience than the novice teachers, who participated in teacher induction programs without a formative observation component (Harrison, 2001).

Conferencing, after a formative observation, provided the opportunity necessary for the more experienced and knowledgeable mentor to guide the novice teacher to solve encountered problems (Cole, 1985). Mentors coached novice teachers by offering constructive feedback after the formative observations in an effort to help them become more effective in their classrooms. Vygotsky (1978) defined this interaction as the Zone

of Proximal Development [ZPD]. Mentors were able to scaffold knowledge by leading the discussion to enhance novice teachers' level of understanding to facilitate professional growth (Boreen & Niday, 2000; Vygotsky, 1978). They guided novice teachers in the process of solving problems through social interaction (Minami & Ovando, 2001; Vygotsky, 1978; Wineberg, 1997). Formative observations and conferences provided the opportunities for mentors to guide novice teachers as they applied practical knowledge to their classroom teaching (Feiman-Nemser, 2001). According to Foster (2004), significant changes in novice teachers' attitudes occurred in those who observed mentor or experienced teachers. Novice teachers observed, tried to implement the new practices and then reflected on instruction during implementation (Foster, 2004).

Reflection Component

Recently, additional emphasis has been placed on reflection as an aspect of professional development (Cady, 1998). Before novice teachers attempted the application of new strategies appropriate for teaching students different from themselves, opportunities were required to critically examine their role as a teacher. In doing so, novice teachers reflected on their biases, self-identity and beliefs concerning instructional practices, amended previous ones and implemented new ones (Feiman-Nemser, 2001). Novice teachers learned through studying, applying, and reflecting on appropriate instructional strategies. As they collaborated with peers and their mentors, they objectively examined their practices and shared what was observed (Darling-Hammond, 1999).

Cady (1998) conducted a study of seven pilot projects to examine the effects of structured reflection for novice teachers. All seven projects included a reflective practice group of novice teachers. The participants were divided into groups that met in two and a half hour sessions. The primary goals of this program were to allow novice teachers to share challenges and reflect on professional practices. The structured format, a 10-step process of sharing, enabled novice teachers to develop professional insights that strengthened effective instructional strategies (Cady, 1998).

Reflective sessions often began with a discussion of previous occurrences in the classroom. The focus then shifted to strategies that could have been implemented (Joyce & Showers, 2002). Reflection involved the process of thinking about specific events in the classroom and interpreting what happened and why it happened (Sparks-Langer & Colton, 1991). Novice teachers' abilities to closely examine incorporated classroom strategies evolved over time (Sparks-Langer & Colton, 1991). Reflection allowed both the mentor and novice teacher to renew and regenerate their instructional practices (Huling & Resta, 2001).

When novice teachers participated in a community of learners, they reflected on their experiences and gained different perspectives of teaching and the education profession (Killion & Todnem, 1991). Providing time to reflect within a teacher induction program enabled novice teachers to become more self-confident and learn additional strategies (Villar, 2004). Through this experience, they gained the expertise necessary to become better teachers (Furlong, 2000; Tomlinson, 1995; Zeichner, 1992).

Novice teachers located in California have formed a learning community called STEP + (Meyer, 2002). In an ethnographic case study that included observations, interviews and documentation, Meyer (2002) discovered that novice teachers expressed a need for a safe environment to examine their early teaching experiences. Other than the opportunities provided by teacher induction programs, novice teachers were limited in reflecting on and examining their teaching practices (Meyer, 2002).

In summary, teacher induction programs designed for novice teachers beginning their teaching career consisted of several components. The most effective of these that have been reported was:

- emotional support (Gold, 1996; Stansbury & Zimmerman, 2000),
- professional development (Feiman-Nemser et al., 1999; Smith; Ingersoll, 2004),
- formative observation (Feiman-Nemser et al., 1999; Giebelhaus & Bendixen-Noe, 2000) and
- reflection (Schön, 1987; Halpern, 2000).

Smith and Ingersoll (2004) found that as the number of components incorporated in a single teacher induction program increased, the attrition rate decreased. Examining an individual component's effectiveness resulted in no significant effect on the novice teachers learning. Offering several components such as emotional support in the form of mentoring, collaborating with peers; professional development through seminars and having networks of resources; and reflection through the discussions with peers or mentors within a teacher induction program had a greater effect than providing fewer

components. This combination of components supported novice teachers' learning as well as addressed the retention rate within the profession (Smith & Ingersoll, 2004).

Technology

Mentoring novice teachers benefited students, teachers and schools. However, as educational systems' resources have become more limited, unfunded federal mandates were common (Cetron & Cetron, 2004). Local taxpayers have now financed more of the cost of educating K-12 students than in the past (Cetron & Centron, 2004). Further reductions in educational funds were inevitable (Cetron & Cetron, 2004). To continue to function, creative use of financial resources to meet the requirements of teaching students was required (Cetron & Cetron, 2004; Feiman-Nemser, 2001). Cetron and Cetron (2004) posited an option appearing to meet these needs. They propose shifting to shift professional development to the Internet and to utilize technology to master projected goals of education (DeCoker, 2000), including supporting novice teachers.

Technology Employed to Deliver Teacher Induction Program Components

Technology has touched every aspect of life including the way people learn (Perkins-Gough, Snyder & Licciardi, 2004). It has continued to transform the way we live and learn (Cetron & Cetron, 2004) by allowing people to collaborate regardless of scheduling conflicts, geographic limitations or cost constraints (Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). While still in the beginning stages of online technology supporting novice teachers, this type of communication has previously been used to provide pre-service (Subic & Maconachie, 2004) and in-service professional development opportunities (Richert, 2005). Online

courses for professional development have provided information regarding the use of technology to enhance novice teachers' skills (Richert, 2005).

Emotional Support Component

Various technologies, such as electronic mail, bulletin boards and help lines, have been incorporated to support novice teachers within teacher induction programs (Gold, 1996). Electronic mail allowed previously isolated participants to connect with peers and mentors; thus, reducing isolation (Cifuentes & Shih, 1999). It also provided opportunities for novice teachers to learn from other teachers' perspectives (Cifuentes & Shih, 1999). Additionally online communities gave novice teachers opportunities to talk and reflect on their experiences (Maynard, 2000). The use of the Internet to provide support allowed more one-to-one time between mentors and novice teachers or among novice teachers. Discussions, demonstrations and design of class activities were individualized and designed to meet the needs of the individual teacher (Cifuentes, 1996). Technological venues were relatively inexpensive to operate and were used for novice teachers to share ideas, concerns, and encouraging words regardless of scheduling conflicts, geographic limitations, and cost constraints (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001). Gold (1996) posited that collaboration could occur through the use of electronic mail or bulletin boards.

According to Single and Muller (1999), mentor training in communication and reflective questioning were more crucial for online teacher induction programs than face-to-face mentoring, especially when developing a rapport of trust using technology. Mentors involved in online teacher induction programs were required to rely on their

written skills to clearly communicate with novice teachers (Surbeck, Han & Moyer, 1991). Trained mentors encouraged, motivated, and taught novice teachers to address classroom concerns and challenges through the written word (DeWert et al., 2003; Murray, 1991).

Initial face-to-face meetings have been viewed as beneficial to facilitate networked learning (Davie, 1989; Harris, 1999). At the beginning of the semester, Nicol et al. (2003) found that an initial face-to-face meeting between a mentor and a novice teacher facilitated online interaction when they studied a partnership between 11 further education colleges and two research institutions in Scotland. The study was conducted to establish the effectiveness of a distance learning course. Students involved in the program discussed curriculum, models of learning, student assessment, organization, and evaluation via technology. A combination of interviews, documentation, online dialogue records, and an open-ended questionnaire provided data used to analyze the results of the partnership. The results revealed that an initial face-to-face meeting between a mentor and a novice teacher were viewed as essential. This meeting between novice teacher and mentor established an online relationship and opened lines of communication (Nicol et al., 2003).

Cifuentes, Beller, and Portela (1999) conducted a study investigating the utilization of desktop video conferencing for meetings with people in distant locations. Teachers provided opportunities for students to participate in activities involving desktop video conferencing. Participating teachers were surveyed to determine perceptions. These teachers also logged their experiences. Additionally, students were

selected for an interview. The results indicated that the participants viewed the desktop video conferencing activities as rewarding. Desktop video conferencing provided these participants the opportunities to engage in learning opportunities that would not have been available. However, participants acknowledged that video conferencing activities could not replace face-to-face meetings (Cifuentes et al., 1999).

An online teacher induction program has the capability of serving a larger number of novice teachers than programs which include face-to-face mentoring. Novice teachers, who were previously prohibited from participating in a face-to-face program due to scheduling conflicts, geographic limitations or cost constraints, were now served through online programs (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001). According to Muller (1997), online teacher induction programs' advantages included being cost effective, available and flexible; and allowing novice teachers from various geographic regions to interact with other novice teachers and mentors. The use of technology overcame barriers of time and distance and provided a convenient and flexible media to meet the needs of the individual (DeWert et al., 2003). A survey of novice teachers who participated in the online teacher induction program, Mentor.net, reported that the novice teachers felt part of a community when technology was used for communication (Single & Muller, 2001).

Professional Development Component

DeCoker (2000) stated that technological advances have assisted novice teachers in attaining their goals. Available technology has enabled novice teachers to contact peers and mentors via synchronous, or real time communication, and asynchronous,

communication, allowing time for responses (Molebash, 1999). Internet access, either from home or school, enabled novice teachers to explore research-based ideas and seek information from experts in the field of education (Norton & Gonzales, 1998). In addition to colleagues on their campuses, novice teachers also gained access to a broader community of discussion (Feiman-Nemser, 2001).

Further, online induction programs have emerged to connect students with teachers who provided advice, guidance and feedback on learning projects (Kerka, 1998). Through online communication, novice teachers created communities of inquiry to investigate and solve problems, similar to “learning communities” (Lave & Wenger, 1991/2003; Perkins-Gough et al., 2004). Technology provided a means for teachers to become more knowledgeable about instructional strategies through access to resources and instructional information (ASCD, 1996; Cetron & Cetron, 2004). Ayers and Griffin (2005) recommended that teacher induction programs provide resources, such as textbooks, articles, and websites assisting novice teachers as they grew personally and professionally.

Discussions regarding professional development topics were improbable for novice teachers in urban and rural school districts without the utilization of online communication. Urban districts’ sizes, inadequate funds and availability of mentors, who possess an in-depth knowledge of issues confronting beginning teachers, are challenges overcome through the use of technology (O’Neill, Wagner & Gomez, 1996). Novice teachers benefit from involvement in a broad network of peer contacts providing them with external resources (McCann et al., 2005). Through the online interactions between

mentors and novice teachers, available opportunities assisted novice teachers to articulate their knowledge, reasoning or problem-solving processes (Collins et al., 1989). Through these online communications, responses, and other participant responses are examined (Collins et al., 1989). These discussions guided novice teachers to change shared strategies and apply them within their content areas and grade levels (Collins et al., 1989).

In a study conducted by DeWert et al. (2003), data were collected through online messages, a survey, and structured interviews with novice teachers. These instruments were used to rank the effectiveness of online support. The data indicated that the novice teachers perceived the online collaborative groups as being helpful. After examining the results of the survey, the researchers identified the following areas as being effective: “increased emotional support, decreased feelings of isolation, increased confidence as teachers, more enthusiasm for work, increased reflection, ability to adopt a more critical perspective, and improved problem-solving skills” (DeWert et al., 2003, p. 316). This study revealed that novice teachers, participating in a teacher induction program were encouraged to think critically when using instructional practices, rather than simply accepting the status quo (DeWert et al., 2003). According to the study, an online community of novice and mentor teachers provided novice teachers with the social, emotional and professional support necessary to meet the challenges of their first year of teaching (DeWert et al., 2003). Through the Internet, previously isolated people connected with more experienced teachers (Yearwood & Nichols, 1998).

Boreen and Niday (2000) examined the goals of a teacher induction program. This program's goals included novice teachers having professional conversations with experienced teachers and peers, provided models of collaboration with peers and interacting with mentors and peers utilizing technology. Mentors involved in this teacher induction programs incorporated strategies such as modeling, illustrating, affirming, questioning, and reflecting through face-to-face meetings or those held online. After analyzing the correspondence, the use of electronic mail appeared to foster more sincere relationships. Further, the responses became lengthy as participants asked questions and continued to correspond until the novice teacher understood ways the strategies related theory to practice (Boreen & Niday, 2000).

Formative Observation Component

Rural and small schools have hired as few as three or four a year novice teachers per year. Providing a fully operational teacher induction program would fail to be cost effective (Hersh et al., 1993). To assist novice teachers hired in rural districts, technology provided a venue to communicate through the use of computer LCD projectors, DVD or video systems, audio systems, and online class management software (Menlove & Kraft, 2004). Novice teachers communicated with a mentor or peers via electronic mail, chats, bulletin boards, word processors, and translation software (Menlove & Kraft, 2004). Cifuentes and Shih (2000) investigated the utilization of video conferencing for pre-service teacher training. One hundred and two participants were separated into three groups. These groups communicated via interactive videoconferences, desktop video conferencing or face-to-face meetings. A

survey was administered to determine the participants' perceptions of their experiences. The results indicated that the participants viewed the experiences with each time of communication as rewarding (Cifuentes & Shih, 2000). Research regarding the incorporation of formative observation components utilizing technological venues has been omitted.

Reflection Component

Roessingh and Johnson (2005) reported the experiences of students participating in an online course provided by the University of Calgary graduate program. The students, located throughout Asia and Europe, met in an initial face-to-face meeting at the beginning of the program. They found that technology's flexibility bridged the time and distance gap that had previously prevented them from furthering their education. Initial face-to-face meetings appeared to facilitate building the online learning community. Since online responses were submitted during any time of the day or night, Roessingh and Johnson (2005) found that the student's responses were reflective. Through the use of asynchronous communication, students appeared to reflect before formulating a response to a submitted topic or question (Surbeck et al., 1991). Through inquiry and reflection on instructional practices, students related with the other students assisting each other (Roessingh & Johnson, 2005).

Benefits of Online Teacher Induction Programs

As novice teachers reflected and sought solutions, online teacher induction programs have offered quick access to available external networks (Psaromiligkos & Retalis, 2003). Online reflection activities begin with a discussion of classroom

occurrences. Suggestions from other members of the learning community focus on strategies to improve instructional practice (Joyce & Showers, 2002). Novice teachers evolve into effective teachers as strategies were examined and incorporated into the classroom (Sparks-Langer & Colton, 1991).

In a controlled study by Cifuentes and Shih, 1999, additional benefits included reflecting in practice through the use of writing responses. Composing a message to be sent through electronic mail allowed the learner to reflect on and retain knowledge learned as it was used to compose a message and then transmitted to the learner (Cifuentes & Shih, 1999). Because the communication was written, participants reviewed previous discussion points and reflected on the information before adding to the interaction. Since novice teachers and mentors had to reflect on the former discussion, answers to inquiries appeared thoughtful and reflective. Responses were then reassessed or other lines of discussion were explored. Participants, who normally were quiet and unwilling to participate in class discussions, readily responded in this safe environment (Nicol et al., 2003).

Menlove and Kraft (2004) examined a teacher induction program involving special education teachers. These teachers used the various venues of technology previously listed. They reported that the novice teachers' confidence as a teacher improved as well as their technical skills (Menlove & Kraft, 2004).

The use of technologies within teacher induction programs has provided communication opportunities convenient for novice teachers (Yearwood & Nichols, 1998). Previously isolated teachers in rural and urban districts were connected with

mentors and an external network of peers through technological venues (Freiberg et al., 1994; Hersh et al., 1993; Yearwood & Nichols, 1998). A technology-based delivery system utilized in teacher induction programs included video conferencing, telephones, and web-based venues such as electronic mail, bulletin boards, and chats. Online bulletin boards, chats, and electronic mail have increased the use of networked learning environments by supporting interaction and dialogue between mentors and novice teachers and an external network of novice teachers (Nicol et al., 2003; Yearwood & Nichols, 1998). Mentors and novice teachers' technology use has decreased the scheduling conflicts, geographic limitations, and cost constraints of assistance yet expanded the world of information (Molebash, 1999; Woodd, 1999).

Evaluation

Although technological venues have been utilized, an evaluation of the components of online teacher induction programs employing these venues would provide the information necessary to improve future programs (Geis & Smith, 1992; Kirkpatrick, 1998). As the implementation of the four components was examined, data regarding the participating mentors' perceptions of the components and the technological venues could be collected as a part of level one of a four level evaluation (Kirkpatrick, 1998). The four levels of this type of evaluation have included level one, reaction, determining the participants' perceptions of the effectiveness of the four components and technological venues. Level two, learning, has established the extent participants changed their attitudes toward their position in the teaching profession and their audience of diverse students. Level three, behavior, has analyzed the participants

change in behaviors in the classroom. Finally, level four, results, has indicated the affect of participation in an online teacher induction program on participants (Kirkpatrick, 1998). Levels one and two were considered high priority. These steps should proceed in order, beginning with level one and then continue with the remaining levels as time and funds permit (Kirkpatrick, 1998). Based on the information obtained through an evaluation, established online teacher induction programs could be adjusted to become more effective while influencing the components and technological venues implemented in new programs (Geis & Smith, 1992; Kirkpatrick, 1998).

Summary

Teacher induction programs have incorporated a number of components based on learning theory to support novice teachers as they begin their role to become effective teachers (Smith & Ingersoll, 2004). Technological availability has provided access to novice teachers who had previously been isolated due to schedule limitations, geography or cost (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001). To assist novice teachers as they strived to learn strategies to teach the diverse student population, they needed assistance and support from mentors and peers as they entered the field of teaching (Gold, 1996; Moir, 1999). Providing specifically designed assistance delivered via technological venues has assisted novice teachers by sharing strategies that address learning styles of students representing diverse populations and encouraged them to remain in the profession and become effective teachers (Howey & Zimpher, 1991; RNT, 1999)

CHAPTER III

METHODOLOGY

A descriptive research design was employed to describe the form, structure, activity and relationship of online teacher induction program components as well as the technological venues used for delivery according the mentors in general and then specific groups of mentors (Gall, Borg & Gall, 1996). An online questionnaire was utilized to collect data from mentors participating in an online teacher induction program (Gall et al., 1996; Isaac & Michael, 1997). These online teacher induction programs used technology to provide emotional support, professional development, formative observation, reflection or a combination of components. The mentors were identified via online teacher induction programs, websites, listed in published journal articles, presented at conferences and referred by personal contacts. The mentors were identified according to the novice teachers guided. Mentors provided support for novice teachers in small, medium, or large sized school districts. These novice teachers taught in secondary and elementary school. They were also certified or alternatively certified.

Population

The target population of this study was mentors who assisted novice teachers through online teacher induction programs and utilized technological venues within the program to deliver components.

Sample

Fifty-two online teacher induction programs were identified through published journal articles, and conference presentations as well as through referrals

by personal contacts. Through these existing programs, 82 mentors were identified. Those mentors were personally contacted through electronic mail requesting their participation in this study. (Appendix A). Of the 82 requests for responses, 51 mentors (or 62 percent) responded to the online survey. Therefore, this sample volunteered to participate in this study. Online surveys have an expected response rate of approximately 20 percent (Sax, Gilmartin & Bryant, 2003). Because the number of mentors returning the survey was unpredictable, Gall et al. (1996) described this as non-probability sampling. The 51 participants represented 36 online teacher induction programs located in 16 states and one country outside the United States (see Table 3.1).

As indicated in Table 3.2, of the 36 programs, 14 (or 39 percent) of the online teacher induction programs have been in existence for less than five years. Another 13 programs (or 36 percent) have existed for at least 5 years, but less than 10 years. Additionally, 9 programs (or 25 percent) have served novice teachers for more than 10 years. The mean of programs' existence was six years. The newest program had been in operation for only one year, while the most established program was reported to have supported novice teachers for 19 years.

TABLE 3.1. Location of Online Teacher Induction Programs

State	Programs Identified	Programs Responding
Arizona	8	4
California	6	4
Colorado	2	1
Connecticut	1	1
Georgia	1	1
Illinois	5	4
Indiana	1	1
Louisiana	1	0
Massachusetts	2	0
Michigan	1	1
Mississippi	1	1
Montana	2	2
Nevada	2	0
New York	2	2
Pennsylvania	3	3
Texas	5	5
Virginia	2	1
Washington	2	1
Wisconsin	1	1
Unknown	2	2
Australia	1	1
Total	51	36

The online teacher induction programs served novice teachers who were teaching in public school districts that ranged in size from small rural districts to large urban districts. The sizes were defined by the U. S. Census Bureau (2000). The smallest area was a rural community. A town was larger than a rural community, but smaller than a city. A city was larger than a town, but not located near a larger community. A suburban community was located near a large community. An urban community was the largest and included other communities in the surrounding area. Additionally, mentors working with novice teachers assigned to small private and charter schools were also surveyed.

TABLE 3.2. Length of Existence of the Teacher Induction Programs

Length of existence	<i>f</i> N= 36 programs	%
< 5 years	14	39
5 - 10 years	13	36
10 years +	9	24
Total	36	100

Nine (or 25 percent) of the teacher induction programs reported to serve teachers placed in small schools, such as rural and town districts as well as private and charter schools. Teachers with positions in medium school districts, such as city and suburban districts were served by 10 programs (or 28 percent). Large district teachers in urban areas were served by three (or 8 percent) of the support programs. Programs with teachers placed in positions within districts of all sizes were served by 14 programs (or 39 percent). Since the different online teacher induction programs implemented different combinations of the components, not all the programs represented responded to every question within the online survey (See Table 3.3).

TABLE 3.3. Volunteering Districts' Sizes

District Size	Number of Programs	% of Programs Serving
	Serving Novice Teachers	Novice Teachers N = 36 programs
Small	9	25
Medium	10	28
Large	3	8
All sizes	14	39
Total	36	100

The novice teachers served by an online teacher induction programs were both certified and alternatively certified. Of the 36 online teacher induction programs, mentors representing 36 programs responded to this question. Fifteen (or 42 percent) served only certified teachers, while 16 (or 44 percent) served both. However, 3 (or 8 percent) served only alternatively certified teachers as reported in Table 3.4.

TABLE 3.4. Certification Status of the Novice Teachers Served by Online Teacher Induction Programs

Certification Status	Number of Programs Serving	% of Programs Serving N = 36 programs
Certified	15	42%
Both	16	44 %
Uncertified/Alternatively Certified	3	8 %
Missing	2	6 %
Total	34	100%

A large percentage of the programs were reported to serve secondary teachers. However, several programs served multiple grade levels as noted in Table 3.5. Also demonstrated in Table 3.5, 15 (or 42 percent) of the responding 33 programs served elementary teachers, 27 (or 75 percent) served middle school teachers and 32 (or 89 percent) served high school teachers. None of the programs were reported to serve early childhood teachers. Mentors representing 3 (or 8 percent) of the teacher induction programs failed to answer this question.

TABLE 3.5. Grade Level Taught by the Novice Teachers Served by Online Teacher Induction Programs

Grade Level	Number of Programs Serving	% of Programs Serving N = 36 programs
High School	32	89%
Middle School	27	75%
Elementary	15	42%
Early Childhood	0	0%
Missing	3	8%

Of the 51 mentors, 34 reported their ages. The mentors reporting their ages ranged from 23 years old to 78 years old. The largest percent (or 31 percent) of the mentors fell between the ages of 45 and 55 years old. In addition, 20 percent were under the age of 45, while 16 percent were above 55 years of age as shown in Table 3.6. The mean age of the responding mentors was 48.06 years (see Table 3.6).

TABLE 3.6. Mentor Ages

Age Category	Number of Mentors	
	Within Range N = 51 mentors	% of Mentors Within Range
Under 45 years	10	20
45 - 55 years	16	31
Over 55 years	8	16
Missing	17	33
Total	51	100

Instrument

The Induction and Technology Utilization Survey (ITUS) (Appendix D) was designed to identify the components and technological venues utilized to support novice

teachers. Based on the researched literature the ITUS addressed the components of emotional support, professional development, formative observation, and reflection deemed necessary for the successful induction of novice teachers into the profession (Angelle, 2002; Feiman-Nemser, 2001; Foster, 2004; McCann et al., 2005; Smith & Ingersoll, 2004) (see Figure 3.1).

The conceptual framework of an online teacher induction program was composed of four components delivered through the use of online technologies. Activities of the emotional support, professional development, and formative observation components were coordinated to support novice teachers emotionally and professionally. The fourth component, reflection, was integrated through the other three components. Activities to encourage novice teachers to reflect on instructional strategies were employed in each of the other components. Additionally, the activities utilized in each of the components were delivered through the use of technological venues (see Figure 3.1).

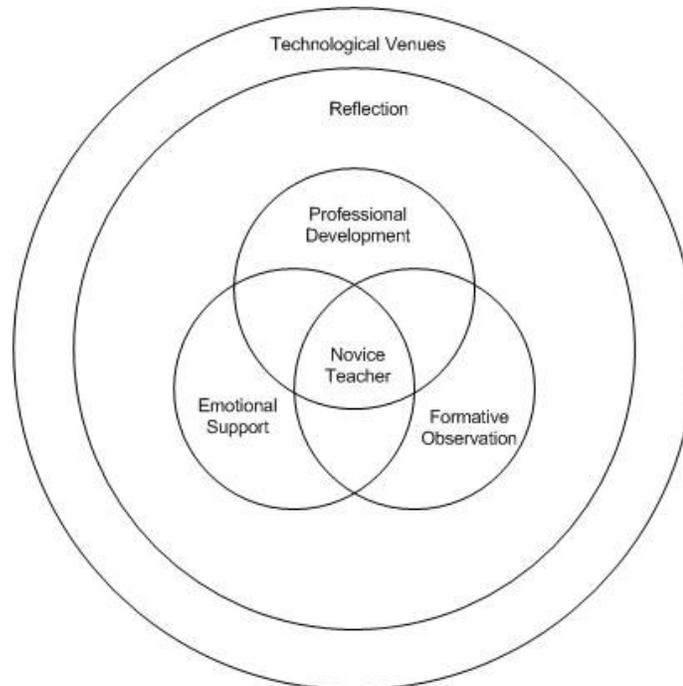


Figure 3.1. Conceptual Framework of Online Teacher Induction Programs

The integration of the components was designed to support novice teachers as they face classroom challenges. An evaluation determined the extent these component were incorporated as well as the effectiveness of the components and technological venues.

In addition to determining the availability and the mentors' perceptions of the effectiveness of the components of online teacher induction programs, the technological venues utilized for delivery were also identified and evaluated. To address each component, specific questions were designed to determine availability, technological venues and effectiveness of each. The first question of each section was designed to determine if the specified component was provided by the online teacher induction program with which the mentor was involved. If the mentor indicated that the

component was not available then the remaining questions included in the section would be skipped. If the component was available, then further specific questions regarding the effectiveness of the utilized technological venues available according to research were presented. Each question addressing effectiveness was answered using a five-point Likert scale with one being ineffective, two somewhat effective, three moderately effective, four effective, and five very effective.

A paper version of the survey with initial questions was given to a panel of experts. The questions were read through for clarity. After minor changes were made following the suggestions of this group, the ITUS was then posted on the website designed for online surveys, HostedSurveys.com. Due to the ability of this online questionnaire to adapt to responses, the participants were only presented with questions that were relevant to the program in which they were involved. For example, if a participant indicated that the online support program in which they were involved lacked the formative observation component, then the questions regarding formative observations and the utilization of technology to support that component would be omitted. The mentor was unable to address these questions. Therefore, each section of the online survey could have a different number of responses thus, affecting the N of each question.

Pilot Study

After developing the online questionnaire, a pilot study under the supervision of Dr. Norvella Carter was conducted. Initially, a panel of experts was consulted to determine the accuracy and wording of the questions. After considering their

recommendations, revisions were made. Then initial contact was made with a group of 15 mentors through an introductory electronic mail (Appendix C). This contact requested their participation in a pilot study. Mentors involved in two different teacher induction programs were asked to respond to the ITUS. The electronic mail request included the web address of the ITUS as well as the detailed instructions for entering a drawing for a Barnes and Nobles gift certificate (Gall et al., 1996). Of the 18 mentors invited to participate, 15 (or 83 percent) responded. Following these responses, final adjustments were made to the ITUS in preparation for this study.

Reliability

To address emotional support, professional development, formative observation and reflection components of an online teacher induction program, each question was answered using a five-point Likert scale with one being ineffective, two somewhat effective, three moderately effective, four effective, and five very effective. To test for reliability, a Cronbach alpha coefficient was calculated to estimate the internal consistency of the items representing each of the components. Table 3.7 lists the ITUS questions focusing on a specific component along with the calculated alphas.

TABLE 3.7. Questions Representing Each Component

Component	Questions	Alpha
Emotional Support	22.6a, 22.6b, 22.6c, 22.6d, 22.6e, 22.6f, 22.6g; 22.8a, 22.8b, 22.8c, 22.8d, 22.8e, 22.8f, 22.8g; 22.10a, 22.10b; 22.11; 23.0	.90
Professional Development	26.3a, 26.3b, 26.3c, 26.3d, 26.3e, 26.3f; 26.4	.80
Formative Observation	31.2a, 31.2b, 31.2c, 31.2d; 34.2	.74
Reflection	38.1.2a, 38.1.2b, 38.1.2c; 38.2a, 38.2b, 38.2c, 38.2d, 38.2e, 38.2f	.72

As reported, the Likert scale used to answer questions on the ITUS had an acceptable Cronbach alpha. Items addressing emotional support were calculated at .90; professional development was at .80; formative observation was at .74; and reflection was at .72 (see Table 3.7).

Validity

The validity of the ITUS used in the study was established through a jury of experts, a pilot study, and two revisions of the questionnaire. The amended questionnaire was then reexamined by a jury of experts. They approved the face and content validity of

the survey. Additionally, internal validity was controlled by the listing of limitations found in the study.

Research Design

The descriptive research design (Gall et al., 1996) was employed to determine the components of online teacher induction programs as well as the technological venues to deliver the support for novice teachers. An online questionnaire, ITUS, was used to gather the information regarding the components and technology used in an online teacher induction program (Gall et al., 1996; Isaac & Michael, 1997). The subjects invited to participate in this study included mentors involved in teacher induction programs that used technology to incorporate emotional support, professional development, formative observation or reflection components or a combination of the above listed components within a teacher induction program. The study's participants were identified via induction or mentoring programs through websites, listed in published journal articles, presented at local, state and national conferences and referred through personal contacts.

Data Collection

Mentors involved in teacher induction or mentoring programs with online components were identified. Potential participants were contacted via electronic mail requesting participation in this study (Appendix A). The electronic mail requested participation in this study and discussed the amount of time that the online survey would require to complete. Notification was followed by a personal phone call to establish a rapport and request their participation (Appendix B). During the phone conversation,

participants were also given an opportunity to enter a drawing for a personal digital assistant (PDA) in return for their responses to the online survey (Gall et al., 1996). After the phone conversation determining mentors' willingness to participate, another email was sent referencing the address of the online survey and thanking them for their participation in the study. This electronic mail also described the process for entering their name for the drawing and detailing the time that the online survey was accessible as well as when the drawing would occur (Appendix C). Further, the electronic mail ensured that the responses would be coded to maintain confidentiality. Finally, the respondents were thanked for their participation. After the month long availability of the online survey, an unbiased individual drew the winner's name from the group of voluntary participants who answered the ITUS. The winner of the PDA was notified via electronic mail and the PDA was shipped to that participant.

Data Analysis

Responses to the online questionnaire regarding the teacher induction program components and the technology utilized to furnish those components were imported from HostedSurvey.com into a spreadsheet. The Statistical Package for the Social Science (SPSS) was then utilized to examine the results of the questionnaire to answer the following questions designed for this study.

Research Question 1

To what extent were emotional support, professional development, formative observation, and reflection components incorporated by online teacher induction programs?

The ITUS was designed to identify the components incorporated to support novice teachers emotionally and professionally in online teacher induction programs. At the beginning of the questionnaire, emotional support, professional development, formative observation, and reflection were defined. The ITUS included sections of questions focusing on the components of emotional support, professional development, formative observation, and reflection. The first question in each section asked the mentors if the online teacher induction program with which they were involved provided the specified component. After eliminating mentor responses representing identical programs, the frequencies of the participant's answers to these questions were calculated.

Research Question 2

What were the mentors' perceptions of the effectiveness of the four components of online teacher induction programs?

Mentor teachers' perceptions of the effectiveness of the components of online teacher induction programs were determined through the examination of their responses to sets of questions on the ITUS. A group of questions focused on each of the program components that included emotional support, professional development, formative

observation, and reflection incorporated within the teacher induction program. Table 3.8 indicates the questions that addressed the effectiveness of the individual components.

Questions related to an individual component in which the participants were associated were presented. Mentors responded to four sets of questions on the ITUS representing the four components. For each participating mentor, the mean of the responses to each set of questions was computed to determine their perceptions of the effectiveness of each component. Using the means of the individual participants' perceptions for a given component, the macro mean and standard deviation of the scores were calculated to determine the mentors' overall perceptions of the component. This procedure was repeated for each component. To analyze the normality of the scores, the skewness and kurtosis values were obtained. In addition, the Kolmogorov-Smirnov statistic was computed. Histograms produced based on the data as well as normal probability plots were examined to determine a pattern.

TABLE 3.8. Questions per Each Component

Component	Questions
Emotional Support	22.6a, 22.6b, 22.6c, 22.6d, 22.6e, 22.6f, 22.6g; 22.8a, 22.8b, 22.8c, 22.8d, 22.8e, 22.8f, 22.8g; 22.10a, 22.10b; 22.11; 23.0
Professional Development	26.3a, 26.3b, 26.3c, 26.3d, 26.3e, 26.3f; 26.4
Formative Observation	31.2a, 31.2b, 31.2c, 31.2d; 34.2
Reflection	38.1.2a, 38.1.2b, 38.1.2c; 38.2a, 38.2b, 38.2c, 38.2d, 38.2e, 38.2f

Research Question 3

Which technological venues were utilized to deliver the four components of online teacher induction programs?

The ITUS was also designed to identify the technological venues utilized to support novice teachers emotionally and professionally in online teacher induction programs. The ITUS included groups of questions focusing on the online teacher induction components and available technological venues. The questions specifically requested responses regarding the required use of technological venues. In addition to

the one to five Likert scale with one as ineffective, two as somewhat effective, three as moderately effective, four as effective, and five being very effective, zero could be also chosen if the venue was not applicable.

Other questions addressed the frequency of use of the technological venues. After omitting mentors' responses representing duplicate online teacher induction programs and eliminating questions that addressed duplicate venues within a given component, the frequencies of the participant's responses were calculated for each of the technological venues utilized in each of the components. To determine utilization of technology, the frequency of the programs that employed a given technological venue was compared to the number of programs offering the identified component.

Research Question 4

What were mentors' perceptions of the effectiveness of the technological venues utilized to deliver the four components of online teacher induction programs?

Mentors' perceptions of the effectiveness of the technologies utilized to incorporate components of online teacher induction programs were determined through the examination of their responses to specific questions on the ITUS. The sections focused on emotional support, professional development, formative observation or reflection and included questions related to the use of electronic mail, bulletin boards, chats, websites, video conferences, video streaming, telephone calls, videotapes, and audiotapes, where applicable. The mentors rated the effectiveness of each technological venue on a one to five Likert scale with one as ineffective, two as somewhat effective, three as moderately effective, four as effective, and five being very effective. The macro

mean and standard deviation of the responses to the question related to a specific venue was computed. To analyze the normality of the scores, the skewness and kurtosis values were obtained. In addition, the Kolmogorov-Smirnov statistic was calculated.

Histograms, produced based on the data as well as normal probability plots, were examined to determine a pattern.

Research Question 5

Were there statistically significant differences in the mentors' perceptions of the effectiveness of the four components of online teacher induction programs related to school districts' size in which the novice teachers were assigned, the grade levels in which the novice teachers taught and the novice teachers' certification routes?

A group of questions focused on each of the four program components that were incorporated within the teacher induction program. Table 3.8 indicated the questions addressing the effectiveness of the individual components. Questions related to an individual component in which the participants were associated were presented.

Mentors responded to four different sets of questions on the ITUS were representing the four components of online teacher induction programs.

For each participating mentor, the mean of the responses to each specific set of questions was computed to determine their perceptions of each component. Using the means of the individual participants' perceptions for a given component, the macro mean, standard deviation, and median of the scores were calculated to determine a specific group of mentors' overall perceptions of the component. The median and mean scores with standard deviations of the mentor's perceptions of the effectiveness of the

components of online teacher induction programs were calculated according to school districts' sizes in which mentor teachers served were assigned. Additionally, the median score of the mentor's perceptions of the effectiveness of the components of online teacher induction programs were determined for programs that served secondary teachers and programs that served both elementary and secondary teachers. The median score of the mentor's perceptions of the effectiveness of the components of online teacher induction programs was also calculated according to the certification route of the novice teachers involved. Either certified teachers participated in the teacher induction program or certified or alternatively certified teachers were assisted by an online teacher induction program.

After the analysis of the mentors' perceptions of the effectiveness of the four components of online teacher induction programs, the macro means were compared to determine a statistically significant difference through the calculation of a Kruskal-Wallis Test. Because the school districts' sizes were divided into four groups of small, medium, large and all sizes; this nonparametric alternative to an analysis of variance (ANOVA) determined the statistical significance in relation to the size of the school districts in which the novice teachers taught. To further analyze a statistically significant difference found by the Kruskal-Wallis Test, a Mann-Whitney Test was computed for all possible comparisons. Additionally, due to the two groups of mentors related to grade level and certification route, a Mann-Whitney Test was computed to determine whether a statistically significant difference existed in the mentors' perceptions of the effectiveness of the components of online teacher induction programs in relation to size

of the school districts, the level in which the novice teachers taught or the certification route of the novice teachers.

Summary

In this chapter, process of identifying online teacher induction programs or mentoring programs was discussed. Mentors involved in these programs were identified and then contacted requesting their participation in responding to the ITUS to determine the inclusion of components within the online teacher induction or mentor program in which they served. Additionally, the technology utilized to implement the components was surveyed. Further, the effectiveness of these components and the technology utilized as perceived by the mentors was also examined.

CHAPTER IV

RESULTS AND ANALYSIS

In this descriptive study of online teacher induction programs, data were collected utilizing the Induction and Technology Utilization Survey (ITUS) (Gall et al., 1996). The data were used to determine the components of the online teacher induction programs, the mentor's perceptions of the effectiveness of the online teacher induction program components, the extent that available technology was employed to implement those components and the mentor's perceptions regarding the effectiveness of methods used to deliver the online teacher induction programs. The sample included 51 (or 59 percent) of the 86 mentors contacted representing 36 (or 69 percent) of the 52 identified teacher induction or mentoring programs. The mentors, who were invited to participate, were presently or had previously been involved with an online teacher induction program that included online components. The study's participants were identified via online teacher induction or mentoring programs located through websites, recognized in published articles, presented at conferences, and referred through personal contacts.

The ITUS, an online questionnaire, was used to collect the data regarding emotional support, professional development, formative observation, and reflection components implemented via online teacher induction programs (Gall et al., 1996; Isaac & Michael, 1997). These components were indicated through research studies to be requirements for the successful induction of novice teachers (Fideler & Haselkorn, 1999; Moon Merchant, 2005). Further, the mentor's perceptions of the effectiveness of the online induction program components were also explored. The ITUS additionally

surveyed the technology venues used to facilitate those components and finally, the mentor's perceptions of the effectiveness of the technologies utilized were calculated. The responses were analyzed on a five-point Likert scale that ranged from "ineffective" to being "very effective". Due to the ability of ITUS to adapt to the mentors' responses, the participants were presented questions that were relevant only to the teacher induction program in which the mentors were involved. For example, if a participant indicated that the online teacher induction program in which they were involved lacked the formative observation component, then questions regarding the utilization technology to support formative observation were omitted; thus affecting the number of mentors' responses. The data collected were then evaluated using the Statistical Package for the Social Sciences (SPSS). The methods and results of the data analysis follow each research question.

Research Question 1

To what extent were emotional support, professional development, formative observation, and reflection components incorporated by online teacher induction programs?

Fifty-one mentors representing 36 online teacher induction or mentoring programs responded to the ITUS. Emotional support, professional development, formative observation, and reflections components have all been implemented in online teacher induction programs. The emotional support component has been provided most often. The four programs (or 11 percent) that included a single component offered novice teachers emotional support. Of the 36 programs represented, 17 (or 47 percent)

were reported to incorporate all four of the components. Twenty-three (or 64 percent) programs included an emotional support component, 21 programs (or 58 percent) included professional development component, 20 programs (or 56 percent) included a formative observation component, and 18 programs (or 50 percent) had a reflection component (see Table 4.1).

TABLE 4.1: Components Included in Online Teacher Induction Programs.

Component	<i>N</i> = 36 programs	%
Emotional Support	23	64
Professional Development	21	58
Formative Observations	20	56
Reflection	18	50

The results of the ITUS appear to indicate that the emotional support component was provided in a majority of the online teacher induction programs. Professional development, and formative observation components were provided in over half of the online teacher induction programs. The least common component available in online teacher induction programs was reflection.

Research Question 2

What were the mentors' perceptions of the effectiveness of the four components of online teacher induction programs?

Using the ITUS, the mentor's perceptions of the effectiveness of each component of online teacher induction programs were measured. Mentors perceived professional development as the most effective component by rating it as very effective while formative observation component was perceived as least effective, rated moderately effective. The mean scores and standard deviations of the effectiveness of the four components are listed in Table 4.2. The mentors responded to questions related to the components using a five point Likert scale with one as ineffective, two somewhat effective, three moderately effective, four effective, and five was very effective. Since each online teacher induction programs consisted of various components, mentors related the effectiveness of more than one component.

TABLE 4.2. Mentors' Perceptions of the Effectiveness of
Online Teacher Induction Program Components

Component	<i>N</i> Mentors	<i>M</i>	<i>SD</i>
Professional Development	28	4.50	1.07
Emotional Support	36	3.89	1.06
Reflection	32	2.67	1.76
Formative Observation	30	2.60	1.77

The professional development component, as perceived by mentor teachers, was indicated as the most effective component with a 4.50 mean score and a standard deviation of 1.07 on a 5-point Likert Scale. Emotional support was also perceived as having value with a 3.89 mean score with a 1.06 standard deviation. The reflection component received a mean score of 2.67 with a standard deviation of 1.76. Finally, formative observation received the lowest mean score of 2.60 and a standard deviation of 1.77 (see Table 4.2).

Professional Development Component

The mean score of the mentor's perceptions of the effectiveness of the professional development component of online teacher induction programs was computed to be 4.50 with a standard deviation of 1.07. When compared to the trimmed mean score of 4.67 to examine the effect of the outliers, the values were found to be similar. This result seemed to indicate that the effect of the outlier scores were minimal.

To test the normality of the mentor teachers' perception scores, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.00, which was less than 0.05. This appeared to signify that the distribution of scores was not normal. A skewness value of -2.72 seemed to demonstrate that the perception scores were negatively skewed. The Kurtosis value of 7.23 appeared to indicate that the curve peaked. An analysis of the histogram of the effectiveness scores of professional development seemed to show that distribution was not normal (see Table 4.3 and Figure 4.1).

TABLE 4.3. Normality Assessments of Effectiveness Scores of the
Professional Development Component

Test	Score
<i>M</i>	4.50
<i>SD</i>	1.07
5% Trimmed Mean score	4.67
Kolmogorov-Simirnov	0.00
Skewness	-2.72
Kurtosis	7.23

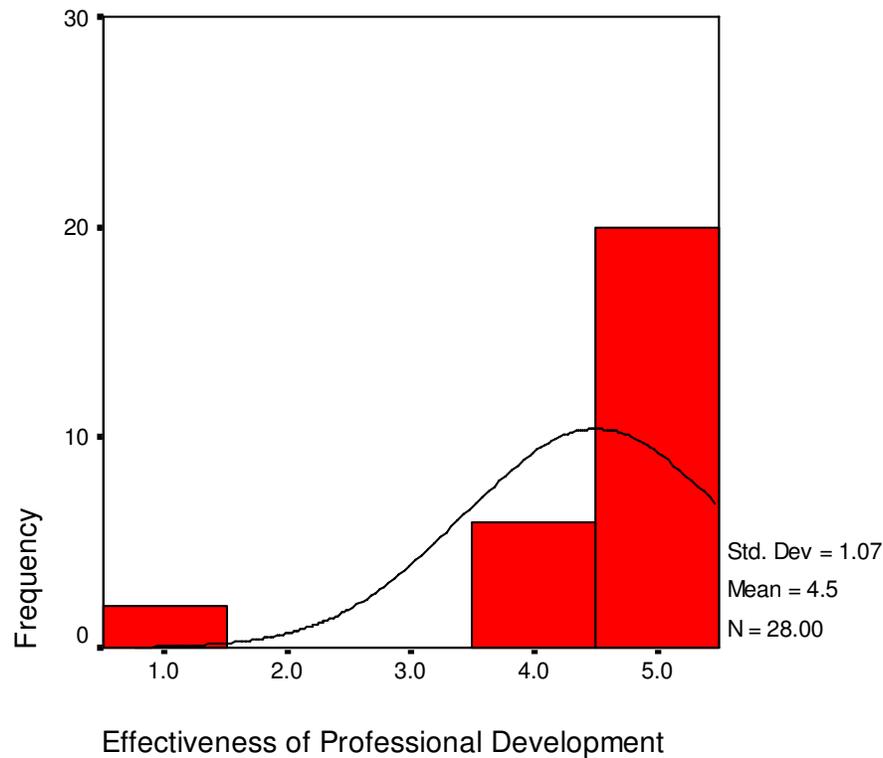


FIGURE 4.1. Histogram of Perceived Effectiveness of the Professional Development Component

Additionally, the Normal Probability Plot (Normal Q-Q Plot) was examined to assess the normality of the curve. The observed values for the effectiveness of the professional development component “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the professional development component failed to align near or on the line of expected value; thereby seeming to support the conclusion

that the values were skewed negatively (see Figure 4.2) indicating that the mentors' perceptions were overall high on the scale.

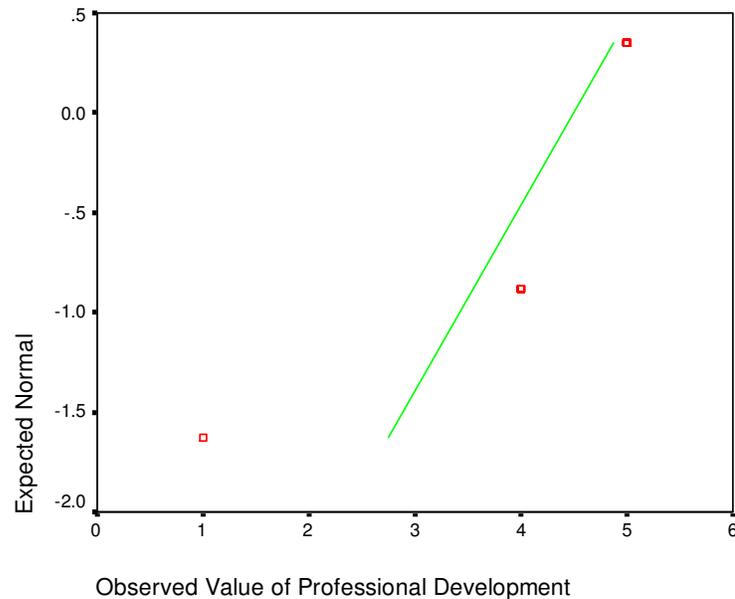


FIGURE 4.2 Normal Q-Q Plot of Perceived Effectiveness of the Professional Development Component

Emotional Support Component

The mean score of the mentor's perceptions of the effectiveness of the emotional support component of online teacher induction programs was computed to be 3.89 with a standard deviation of 1.06. When this value was compared to the trimmed mean score of 3.93, it was found to be similar to the original mean score. This appeared to indicate that the effect of the outlier scores were minimal.

To test the normality of the mentor teachers' perception scores, the Kolmogorov-Simirnov statistic was calculated. The significance was computed to be 0.00, which was less than 0.05. This seemed to demonstrate that the distribution of scores was not normal. A skewness value of -0.37 appeared to signify that the perception scores were negatively skewed. The Kurtosis value of -1.19 seemed to specify that the curve was flat, rather than peaked (see Table 4.4 and Figure 4.3).

TABLE 4.4. Normality Assessments of Effectiveness Scores of the
Emotional Support Component

Test	Score
Mean score	3.89
Standard Deviation	1.06
5% Trimmed Mean score	3.93
Kolmogorov-Simirnov	0.00
Skewness	-0.37
Kurtosis	-1.19

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the emotional support component “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness

of the emotional support component failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed demonstrating that the scores were high on the scale (see Figure 4.4).

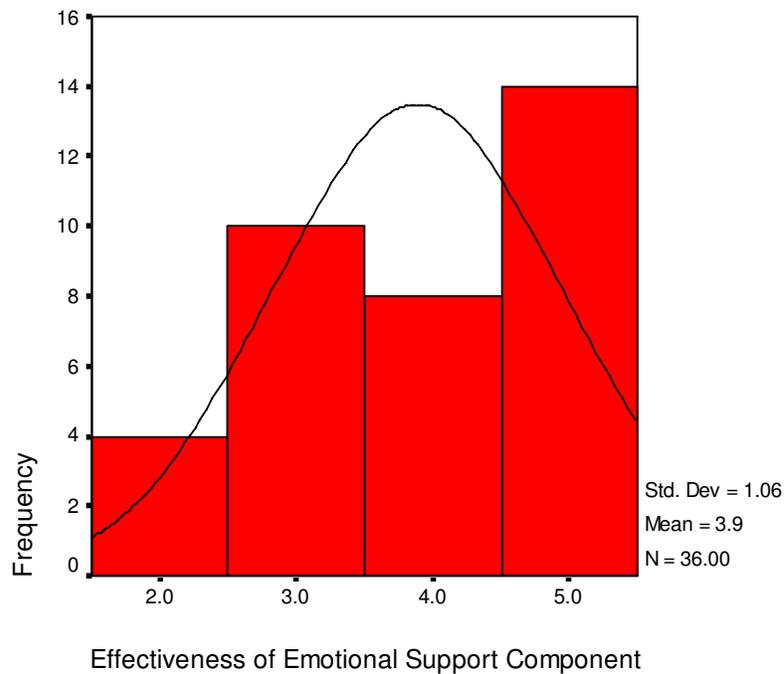


FIGURE 4.3. Histogram of the Perceived Effectiveness of the Emotional Support Component

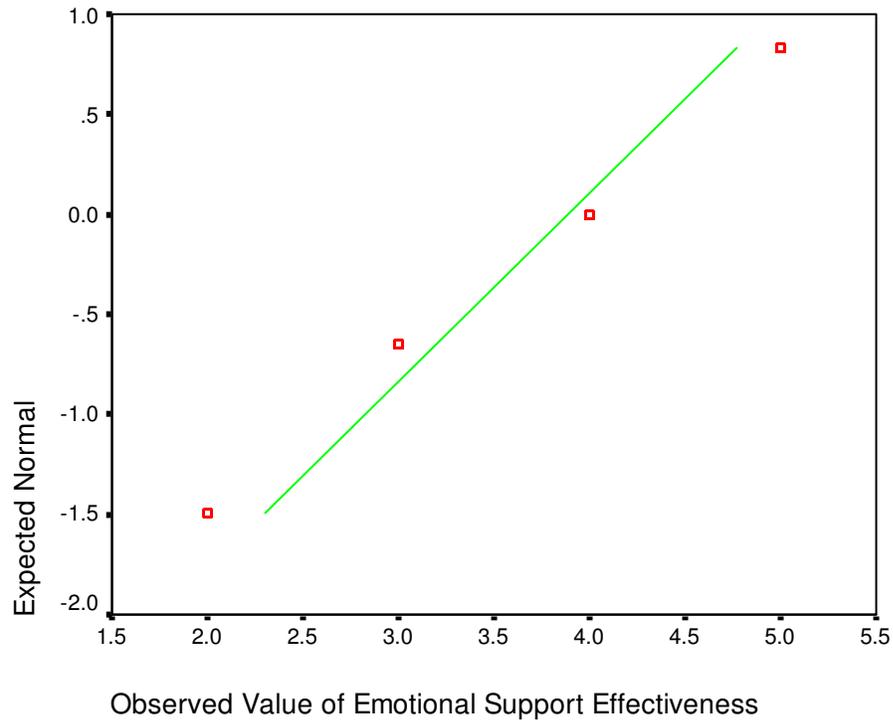


FIGURE 4.4. Normal Q-Q Plot of the Perceived Effectiveness of the Emotional Support Component

Reflection Component

The mean score of the mentor's perceptions of the effectiveness of the reflection component of online teacher induction programs was computed to be 3.56 with a standard deviation of 0.94. When compared to a trimmed mean score of 3.56, the values were found to be identical. This computation seemed to signify that the effects of the outlier scores were minimal.

To test the normality of the mentor teachers' perception scores of the effectiveness of the reflection component, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.05 which was equal to 0.05. This seemed to signify that the distribution of scores was normal. A skewness value of 0.03 appeared to demonstrate that the perception scores were slightly positively skewed. The Kurtosis value of -1.26 seemed to illustrate that the curve was flat rather than peaked. The histogram of the effectiveness of the reflection component appeared to show that the scores were not normally distributed (see Table 4.5 and Figure 4.5).

TABLE 4.5. Normality Assessments of Effectiveness Scores of the
Reflection Component

Test	Score
Mean score	3.56
Standard Deviation	0.94
5% Trimmed Mean score	3.56
Kolmogorov-Smirnov	0.05
Skewness	0.03
Kurtosis	-1.26

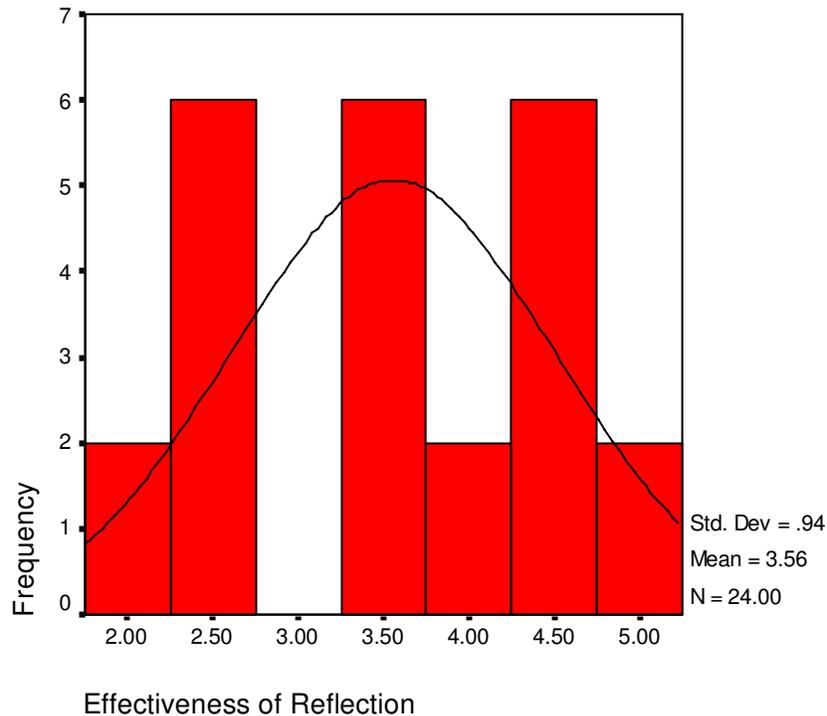


FIGURE 4.5. Histogram of Perceived Effectiveness of Reflection Component

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the reflection component “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the reflection component failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed; however, the distribution lacked a consistent pattern (see Figure 4.6).

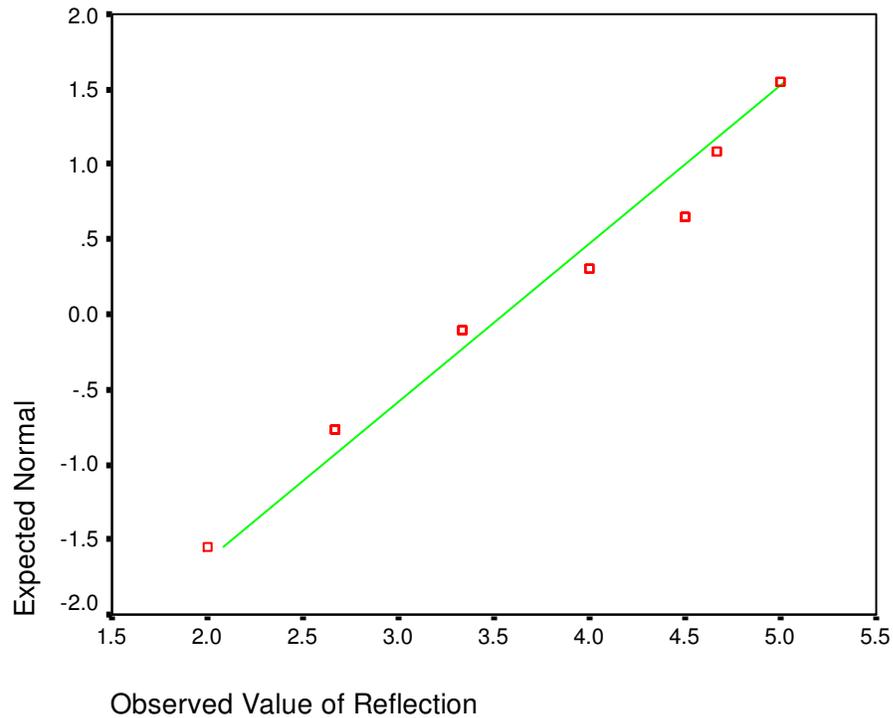


FIGURE 4.6. Normal Q-Q Plot of Perceived Effectiveness of Reflection Component
Methods of Reflection

Formative Observation Component

The mean score of the mentor's perceptions of the effectiveness of the formative observation component of online teacher induction programs was computed to be 2.60. When compared to a trimmed mean score of 2.56 to examine the effect of the outliers, the values were found to be similar. This result appeared to demonstrate that the effect of the outlier scores were minimal.

To test the normality of the mentor teachers' perception scores, the Kolmogorov-Simirnov statistic was calculated. The significance was calculated to be 0.00 which was less than 0.05. This score seemed to specify that the distribution of scores was not normal. A skewness value of 0.58 seemed to indicate that the perception scores were positively skewed. The Kurtosis value of -1.57 seemed to illustrate that the curve was flat. Analysis of the effectiveness scores of the formative observation component histogram seemed to support the conclusion that scores were not normally distributed (see Table 4.6 and Figure 4.7).

TABLE 4.6. Normality Assessments of Effectiveness Scores of the
Formative Observation Component

Test	Score
<i>M</i>	2.60
<i>SD</i>	1.77
5% Trimmed Mean score	2.56
Kolmogorov-Simirnov	0.00
Skewness	0.58
Kurtosis	-1.57

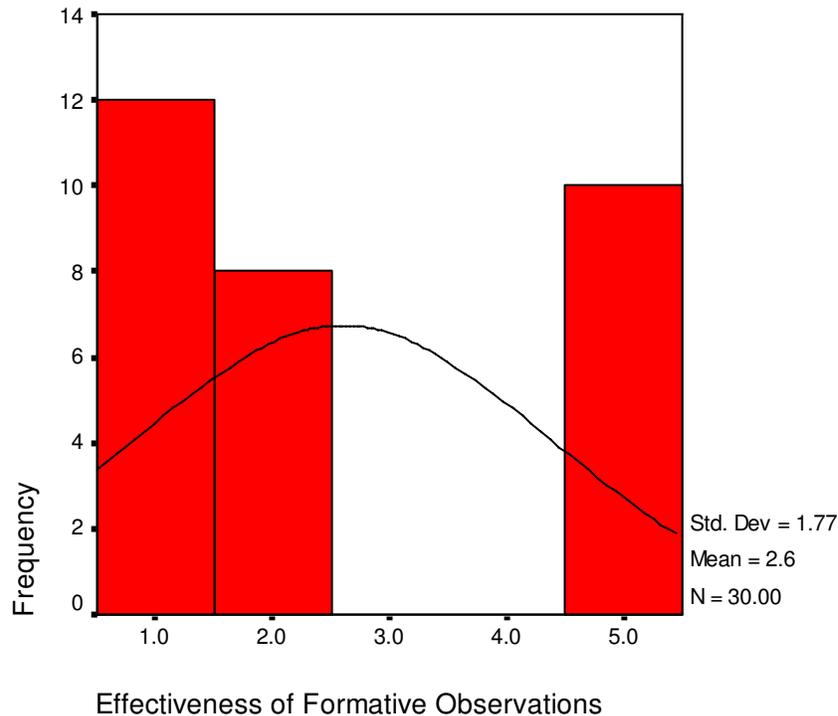


FIGURE 4.7. Histogram of the Perceived Effectiveness of the Formative Observation Component

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the formative observation component “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the formative observation component failed to align near or on the line of expected value; thereby appearing to support the conclusion that the values were skewed positively (see Figure 4.8) indicating that the mentors’ perceptions were on the low end of the scale.

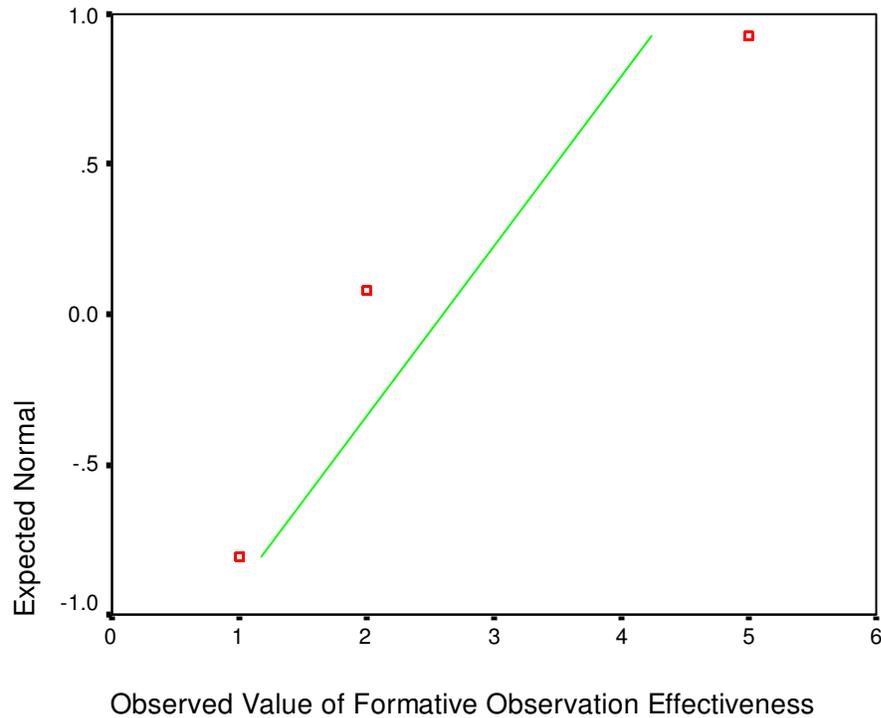


FIGURE 4.8. Normal Q-Q Plot of Perceived Effectiveness of the Formative Observation Component

The results of the mentor teachers' responses to the ITUS appear to indicate that the professional development component was perceived as the most effective component provided by online teacher induction programs with a rating between effective and very effective on the five-point Likert scale. The mentor teachers also appeared to perceive the emotional support component as effective. Both formative observation and reflection components appeared to be perceived as moderately effective.

Research Question 3

Which technological venues were utilized to deliver the four components of online teacher induction programs?

Professional Development Component

Mentors indicated that 21 of the 36 (or 58 percent) online teacher induction programs included a professional development component and utilized various modes of technology to present topics. Websites, videotaped lessons, video streaming, video conferencing and face-to-face meetings were utilized to deliver professional development. Twenty-one online teacher induction programs (or 71 percent) employed website resources to provide instruction on professional development topics.

Additionally, videotaped lessons were incorporated by 13 (or 62 percent) of the teacher induction programs, while video streaming was employed by 10 (or 48 percent). Topics were also addressed through video conferencing by 7 (or 33 percent) of the programs.

Further, face-to-face meetings were incorporated by 5 (or 24 percent) of the programs to deliver instruction on professional development topics (see Table 4.7).

TABLE 4.7. Venues of Professional Development Presentation

Mode of Presentation	<i>f</i> N=21 programs	%
Website Resources	21	71
Videotaped Lessons	13	62
Video Streaming	10	48
Video Conferencing	7	33
Face-to-face Meetings	5	24

Emotional Support Component

Communication between Mentor and Novice Teachers

Table 4.8 indicates the percentages of the 23 online teacher induction programs that included an emotional support component requiring mentors to communicate via various technological forms. Mentors indicated that mentor to novice teacher communication occurred via electronic mail, telephone, bulletin boards, face-to-face meetings, video conferencing, and chats.

TABLE 4.8. Technological Venues of Communication Utilized

Form of Communication	<i>f</i>	
	<i>N</i> = 23	%
	programs	
Electronic mail	17	74
Telephone	17	74
Bulletin Board	11	48
Face-to-face meetings	6	26
Video Conferencing	5	22
Chat	2	9

Seventeen (or 74 percent) of the mentors responding to the ITUS reported that the teacher induction programs required mentors to communicate with the novice teachers through electronic mail. Telephone calls were expected by 17 (or 74 percent) of the programs. A bulletin board was integrated into 11 (or 48 percent) of the online teacher induction programs. Face-to-face meetings were necessitated by six (or 26 percent) of the online teacher induction programs, while video conferencing was employed by five (or 22 percent). Only two (or 9 percent) programs required mentors to utilize chats (see Table 4.8).

Communication among Novice Teachers

Twenty-three programs (or 64 percent) required some form and frequency of communication among novice teachers within the same program. These modes of communication among groups of novice teachers occurred via face-to-face meetings in four (or 17 percent) programs, and bulletin boards in three (or 13 percent) programs. Video conferencing were required in three (or 13 percent) programs, electronic mail was utilized in two (or 9 percent) programs, and the telephone was used in another two (or 9 percent) programs (see Table 4.9).

TABLE 4.9. Venues of Communication among Novice Teachers

Mode of Communication	<i>f</i>	%
	<i>N</i> = 23	
	programs	
Face-to-face Meetings	4	17
Bulletin Board	3	13
Video Conferencing	3	13
Electronic Mail	2	9
Telephone	2	9

Formative Observation Component

Formative Observations Conducted by Mentors

Mentors reported that formative observations occurred in 20 (or 56 percent) of the 36 represented online teacher induction programs. Mentors completed formative observations via face-to-face meetings, videotapes, and video conferencing. Formative observations were completed by mentors through face-to-face meetings in 11 (or 55 percent) of the programs. Videotapes were utilized in five (or 25 percent) programs, while video conferencing was employed in only one (or 5 percent) online teacher induction program (see Table 4.10). The number of formative observations completed within the duration of a program ranged from one to six, while the mean score of formative observations was four with a standard deviation of 1.67.

TABLE 4.10. Venues of Communication Utilized to Complete Formative Observations

	<i>f</i>	
Modes of Communication	<i>N</i> = 20	%
	programs	
Face-to-face Meetings	11	56
Videotape	5	25
Video Conference	1	5

Observations Conducted by Novice Teachers

In addition to being observed, novice teachers were also required to observe other teachers including their mentor, other experienced teachers or peers in the 18 (or 100 percent) of the programs that contained a formative observation component. Master or experienced teachers were observed by novice teachers in 10 (or 56 percent) of the programs. Novice teachers also observed their mentor teachers in eight (or 44 percent) of the 18 programs requiring observations. Peers were also observed in four (or 22 percent) programs (see Table 4.11).

TABLE 4.11. Teacher Observed by Novice Teachers

Teachers Observed by	<i>f</i>	
	<i>N</i> = 18	%
	programs	
Experienced Teachers	10	56
Mentors	8	44
Novice Teachers' Peers	4	22

Self-Critique

In 16 (or 89 percent of 18 teacher induction programs, novice teachers were asked to formally critique their own instruction online teacher induction programs that included a formative observation component. Other forms of self-critique not addressed

by ITUS were incorporated in 13 (or 72 percent) of these programs. These other forms of critique reported by mentors included assessment of test results, analysis of data collected by the mentors through questioning and other forms of written reflections such as journals. The use of videotapes to critique instruction was employed by six (or 33 percent) of the represented programs. Audiotapes of instruction were utilized by one (or 6 percent) program (see Table 4.12).

TABLE 4.12. Venues Used by Novice Teachers to Self-critique Instruction

Mode	<i>f</i>	
	<i>N</i> = 18 programs	%
Other Forms	13	72
Videotapes	6	33
Audiotapes	1	6

Reflection Component

Of the 36 online teacher induction programs represented in the mentors' responses, 17 (or 47.22 percent) formally encouraged novice teachers to reflect upon their teaching. Mentors reported that online teacher induction programs incorporated more than one type of communication within the reflection component including electronic mail, face-to-face meetings, bulletin boards, and chats. Twelve (or 71

percent) programs reported the use of face-to-face meetings as a means of reflection between the mentors and novice teachers. Additionally, 11 (or 65 percent) online teacher induction programs incorporated face-to-face meetings among novice teachers to encourage further reflection. Electronic mail was utilized for novice teachers to share their reflections with their mentors in 13 (or 76 percent) programs that incorporated this form of communication. Bulletin boards were utilized by 10 (or 59 percent) of the online teacher induction programs. Only four (or 24 percent) programs asked novice teachers to reflect in chat sessions (see Table 4.13).

TABLE 4.13. Venues of Communication for Reflection

Mode of Communication	<i>f</i>	
	<i>N</i> = 17 programs	%
Electronic Mail	13	76
Face-to-face Meeting between Mentor and Novice Teacher	12	71
Face-to-face Meeting among Novice Teachers	11	65
Bulletin Boards	10	59
Chats	4	24

TABLE 4.14. Frequency of Technological Venues for Each Component

Technological Venue	Professional Development		Emotional Support		Formative Observation		Reflection	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
	<i>N</i> = 26 programs		<i>N</i> = 23 programs		<i>N</i> = 20 programs		<i>N</i> = 17 programs	
Audiotape					1	6		
Bulleting			11	48			10	59
Boards								
Chats			2	9			4	24
Electronic			17	74			13	76
Mail								
Face-to-face	5	24	6	26	11	56	12	71
Meetings								
Telephone			17	74				
Video	7	33	5	22	1	5		
Conference								
Videotapes	13	62			6	33		
Video	10	48						
Streaming								
Websites	21	71						

Upon examining the mentors' responses to the ITUS, the findings appeared to indicate that online teacher induction programs employed face-to-face meetings to deliver all four components. Bulletin boards, chats, electronic mail, video conference, and videotapes were utilized for two components while audiotapes, telephones, video streaming, and websites were used to implement only one component (see Table. 4.14).

In the professional development component, the technological venue utilized by most online teacher induction program to deliver professional development was the use of websites. Videotaped lessons and video streaming was utilized in half of the online teacher induction programs represented. Video conferencing and face-to-face meetings use was limited.

The largest percentage of the online teacher induction programs with an emotional support component utilized electronic mail and telephone. Bulletin boards were used in half of the online teacher induction programs, while face-to-face meetings were used the least to deliver the emotional support component in one-fourth of the online teacher induction programs examined.

Face-to-face meetings were the method most commonly chosen to conduct formative observations. Additionally, video conferencing, videotape, and audiotapes were employed. The audiotapes were provided for mentors to listen rather than visually observe lessons.

When examining the reflection component, electronic mail was the most common method incorporated. Face-to-face meetings were almost as common as

electronic mail. Bulletin boards were utilized almost as often as the previous two venues. The use of chats was limited to four online teacher induction programs.

Technology continues to revolutionize the way we live and learn by allowing people to collaborate regardless of scheduling conflicts, geographic location or cost constraints (Cetron & Cetron, 2004; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998).

Research Question 4

What were mentors' perceptions of the effectiveness of the technological venues utilized to deliver the four components of online teacher induction programs?

Technological Venues for Professional Development

The mentor's perceptions of the effectiveness of the types of technological modes available to provide the novice teachers with professional development were also examined (see Table 4.15). The technological modes examined were Internet Websites, videotapes, video streaming, video conferencing, and face-to-face meetings. Through the use of the ITUS, the mentors indicated that more than one technological mode was used to deliver the professional development component. As indicated in Table 4.15, video streaming was perceived as the most effective with a mean score of 3.80 and a standard deviation of 1.28 with 20 participants responding. Videotaping was evaluated by 30 participants and had a mean score of 3.60 with a standard deviation of 1.65. The mean score of Internet Websites was 2.87 with a standard deviation of 1.53. Face-to-face meetings were evaluated by 10 participants with a mean score of 2.80 and a

standard deviation of 0.49. Video conferencing was evaluated by 14 participants with a mean score of 2.71 and a standard deviation of 0.32 (see Table 4.15).

Additionally, assessments to determine the normality of the perception scores of each of the technologies utilized for novice-novice teacher communication were completed. The results are reported in Table 4.15.

TABLE 4.15. Mentors' Perceptions of the Effectiveness of Technological Venues Utilized for Professional Development

Technology	<i>N</i> <i>Mentors</i>	<i>M</i>	<i>SD</i>	5%			
				Trimmed Mean score	Kolmogorov- Simirnov	Skewness	Kurtosis
Video	20	3.80	1.28	3.83	0.00	-0.59	-1.41
Streaming							
Videotape	30	3.60	1.65	3.67	0.00	-0.88	-0.99
Websites	30	2.87	1.53	2.85	0.00	-.01	-1.36
Face-to- face	10	2.80	1.55	2.83	0.00	-2.28	-0.48
Video Conference	14	2.71	1.20	2.74	0.00	-0.59	-1.19

Video Streaming

The mean score of the mentor's perceptions of the effectiveness of video streaming was computed to be 3.80 with a standard deviation of 1.28. When this value was compared to the trimmed mean score to examine the effect of the outliers, 3.83 was found to be similar to the original calculation. This seemed to signify that the effect of the outlier scores was minimal.

To test the normality of the scores of the mentor teachers' perception scores, the Kolmogorov-Smirnov statistic was calculated. The significance was calculated at 0.00 which was less than 0.05. This appeared to demonstrate that the distribution of scores was not a normal curve. A skewness value of -0.59 seemed to indicate that the scores of the mentor teachers' perceptions were negatively skewed. The Kurtosis value of -1.41 appeared to indicate that the curve was flat rather than peaked. The histogram plot of the effectiveness scores of video streaming appeared to illustrate that the scores were not normally distributed (see Table 4.15 and Figure 4.9).

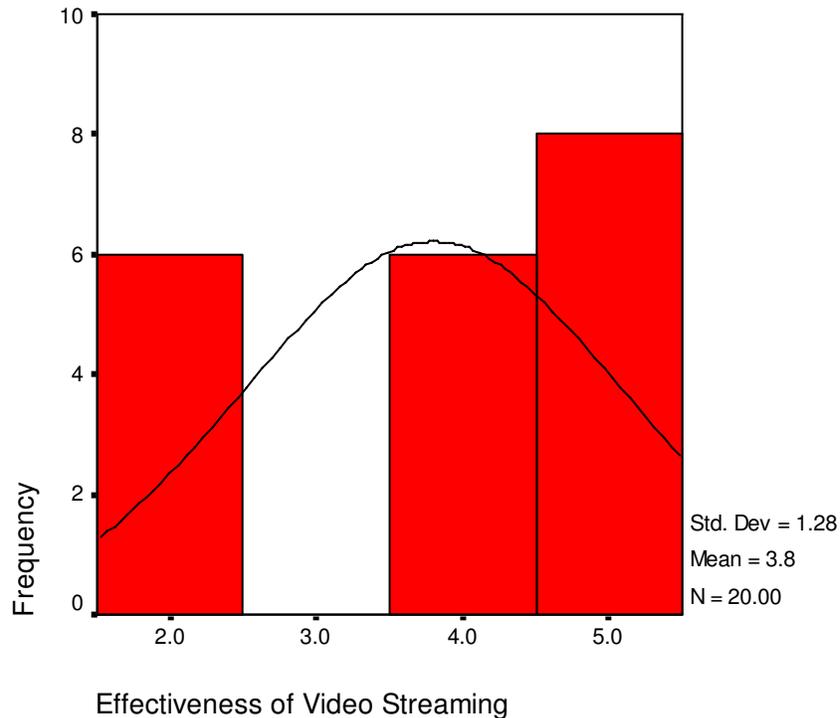


FIGURE 4.9. Histogram of Perceived Effectiveness of Video Streaming

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the mentor’s perceptions of the effectiveness of video streaming “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of video streaming failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed with clusters of high scores (see Figure 4.10).

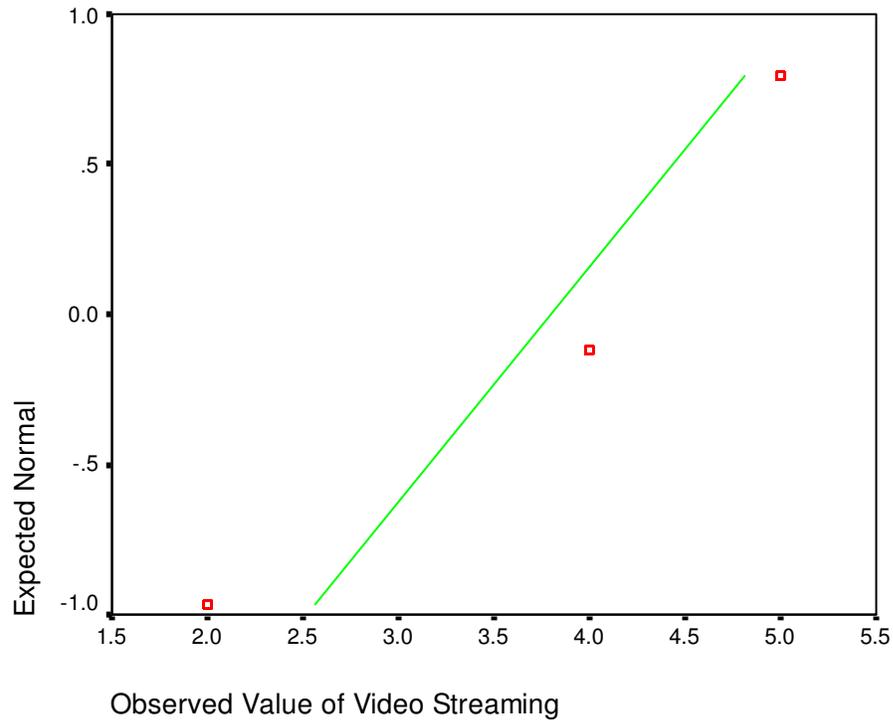


FIGURE 4.10. Normal Q-Q Plot of Perceived Effectiveness of Video Streaming

Video Tapes

The mean score of the mentor's perceptions of the effectiveness of videotapes used to deliver professional development was computed to be 3.60 with a standard deviation of 1.65. When compared to a trimmed mean score of 3.67 to examine the effect of the outliers, it was found to be the same. This appeared to indicate that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was calculated at 0.00, which was less than 0.05. This seemed to signify that the distribution of scores was not

normal. A skewness value of -0.88 appeared to demonstrate that the perception scores were negatively skewed. The Kurtosis value of -0.99 appeared to specify that the curve was flat rather than peaked. An analysis of the histogram regarding the effectiveness of the utilization of videotapes for professional development seemed to support the conclusion that the scores were not normally distributed (see Table 4.15 and Figure 4.11).

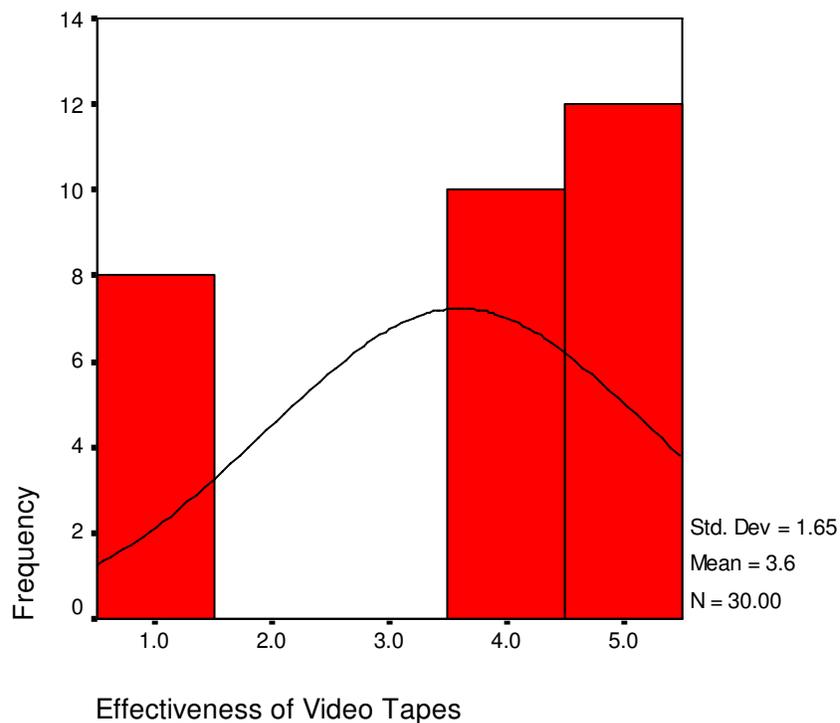


FIGURE 4.11. Histogram of Perceived Effectiveness of Videotapes

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of videotapes for professional

development “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the use of videotapes for professional development failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed with clusters of high scores (see Figure 4.12).

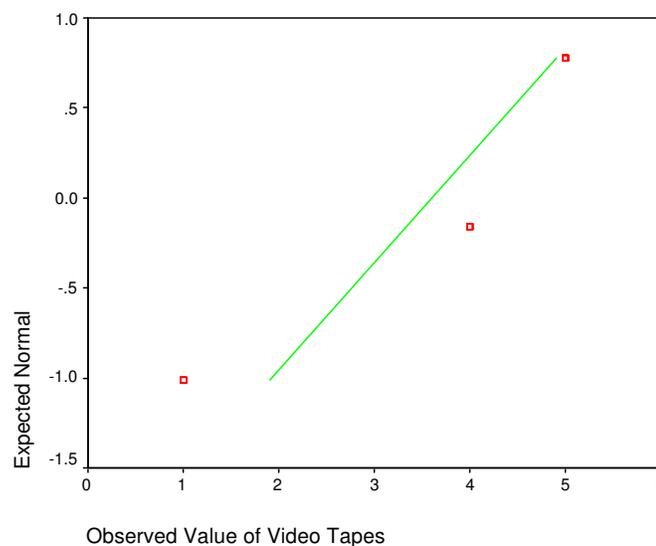


FIGURE 4.12. Normal Q-Q Plots of Perceived Effectiveness of Videotapes

Websites

The mean score of the mentor’s perceptions of the effectiveness of the use of websites as a resource for professional development was computed to be 2.87 with a standard deviation of 1.53. When the mean score was compared to a trimmed mean score of 2.85 to examine the effect of the outliers, the values were found to be similar. This appeared to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was calculated at 0.00, which was less than 0.05. This seemed to specify that the distribution of scores was not a normal curve. A skewness value of -0.01 appeared to indicate that the perception scores were slightly negatively skewed. The Kurtosis value of -1.36 appeared to demonstrate that the curve was flat rather than peaked. Analysis of the histogram of the effectiveness of websites seems to support the conclusion that the scores were not normally distributed (see Table 4.15 and Figure 4.13).

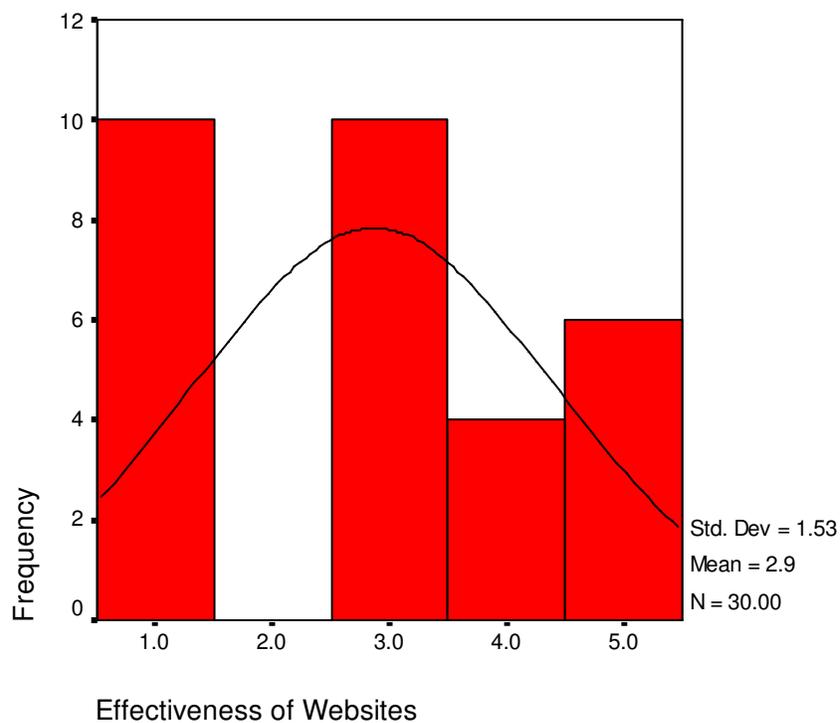


FIGURE 4.13. Histogram of Perceived Effectiveness of Websites

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of websites “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the utilization of websites failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed; however, the distribution lacked a consistent pattern of scores (see Figure 4.14).

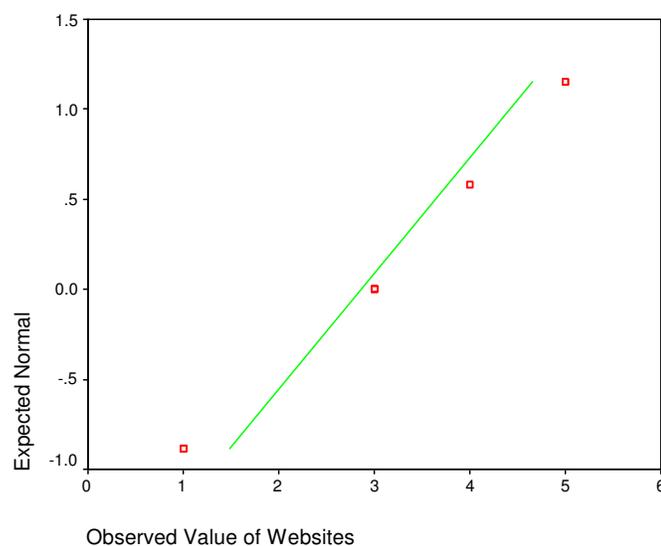


FIGURE 4.14. Normal Q-Q Plot of Perceived Effectiveness of Websites

Face-to-Face Meetings between the Mentor and Novice Teacher

The mean score of the mentor’s perceptions of the effectiveness of face-to-face meetings between the mentor and novice teacher providing professional development

was computed to be 2.80 with a standard deviation of 1.55. When this value was compared to the trimmed mean score of 2.83 to examine the effect of the outliers, it was found to be similar to the original calculation. This seemed to demonstrate that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.00, which was less than 0.05; thus appearing to signify that the distribution of scores was not normal. A skewness value of -2.28 appeared to indicate that the scores of the mentors' perceptions were negatively skewed. The Kurtosis value, -0.48, seemed to specify that the curve was flat rather than peaked. An analysis of the effectiveness scores of face-to-face meetings scores between mentors and novice teachers to deliver professional development seemed to support the conclusion that the scores were not normally distributed (see Table 4.15 and Figure 4.15).

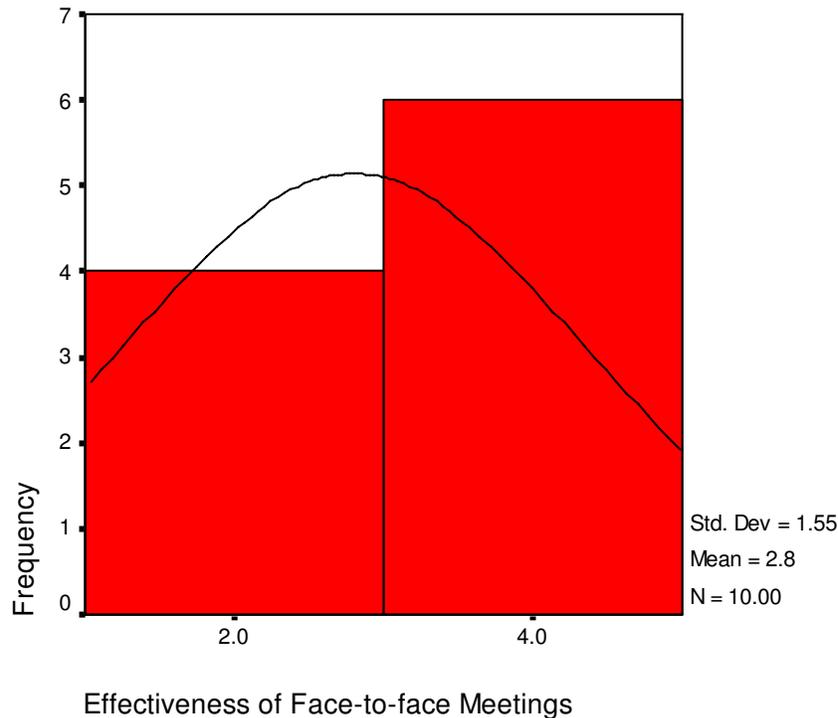


FIGURE 4.15. Histogram of Perceived Effectiveness of Face-to-Face Meetings

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of face-to-face meetings between mentors and novice teachers to deliver professional development “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of face-to-face meetings between the mentors and novice teachers in delivering professional development failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed; however, the distribution of scores lacked a consistent pattern (see Figure 4.16).

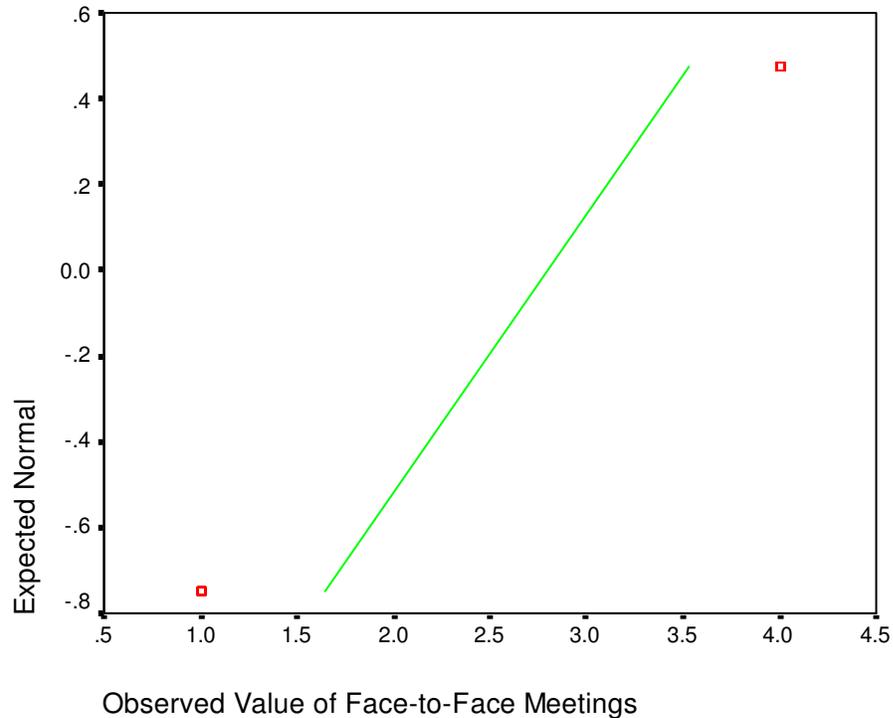


FIGURE 4.16. Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings

Video Conferencing

The mean score of the mentor's perceptions of the effectiveness of utilizing video conferencing for professional development was computed to be 2.71 with a standard deviation of 1.20. When this mean score was compared to a trimmed mean score of 2.74 to examine the effect of the outliers, the values were found to be similar. This seemed to demonstrate that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions of using video conferencing for professional development, the Kolmogorov-Smirnov statistic

was calculated. The significance calculated was 0.00 which was less than 0.05; thus, appearing to signify that the distribution of scores was not normal. A skewness value of -0.59 appeared to specify that the perception scores were negatively skewed. The Kurtosis value of -1.19 seemed to show that the curve was flat rather than peaked. The histogram plot of the scores of the effectiveness of using video conferencing for professional development seemed to illustrate that the scores were not normally distributed (see Table 4.15 and Figure 4.17).

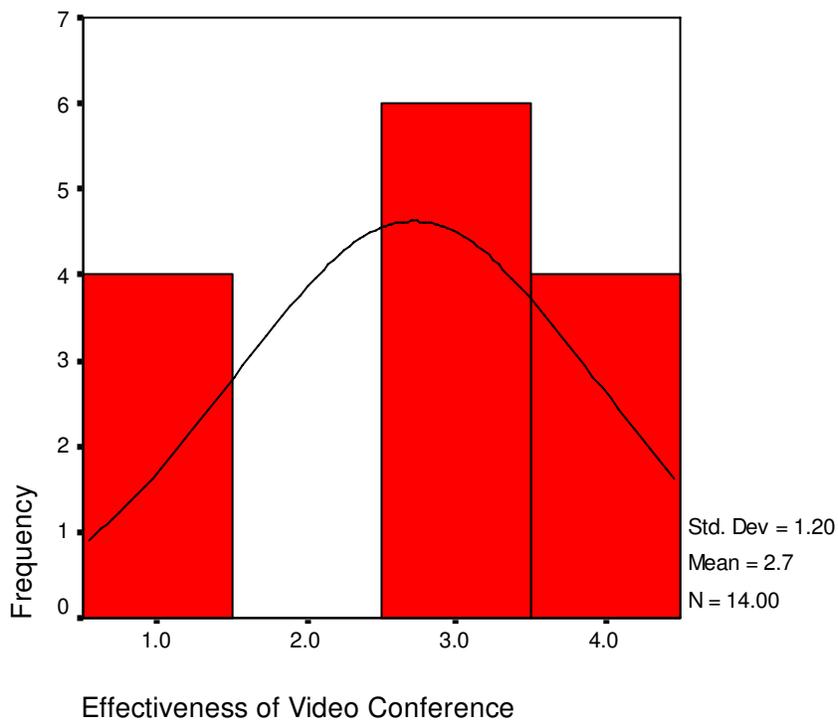


FIGURE 4.17. Histogram of Perceived Effectiveness of Video Conferencing

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of video conferencing being used to deliver professional development “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of video conferencing to deliver professional development failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed with scores clustered at the high end of the scale (see Figure 4.18).

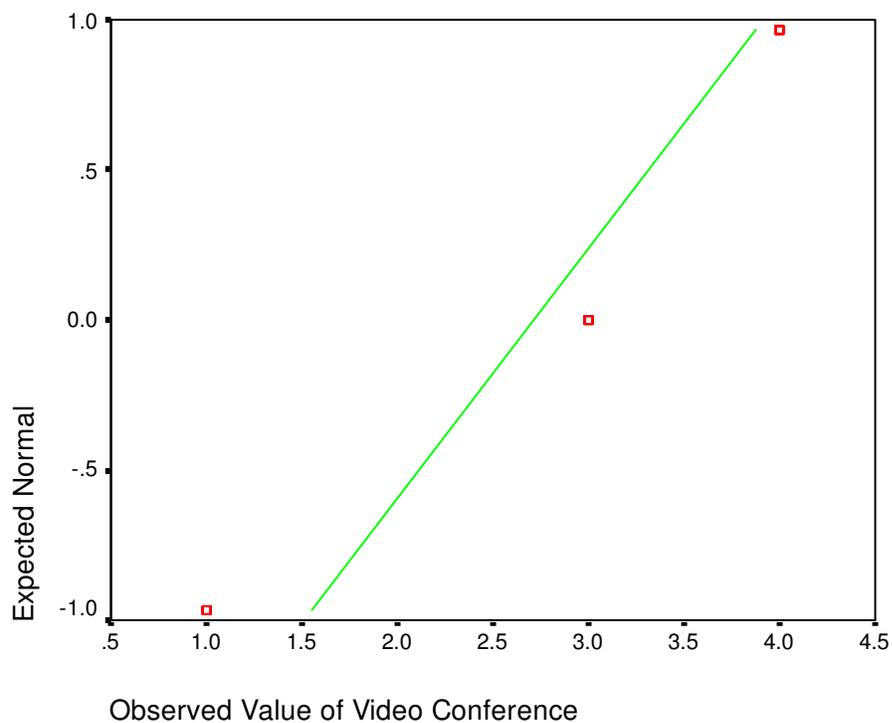


FIGURE 4.18. Normal Q-Q Plot of Perceived Effectiveness of Video Conferencing

Technological Venues for the Emotional Support

The effectiveness of the types of technology available to the mentors to support novice teachers emotionally was also examined. The technological venues examined consisted of electronic mail, telephones, bulletin boards, chats, face-to-face meetings, and video conferencing. As indicated in Table 4.16, electronic mail was perceived as the most effective with a constant response of 5.00. With four participants responding. Using the telephone was also perceived as effective by eight participants with a mean score of 4.75 and standard deviation of 0.46. Thirty participants evaluated the effectiveness of bulletin boards. The mean score of bulletin board use was 4.40 with a standard deviation of 0.81. Video conferencing was also perceived as effective by 10 participants with a mean score of 4.00 and a standard deviation of 1.63. Chats were viewed by 18 participants as relatively effective with a mean score of 3.78 and a standard deviation of 1.06. The technological mode that was perceived as the least effective by 18 mentors was face-to-face meetings with a mean score of 2.89 and a standard deviation of 1.13 (see Table 4.16).

The results of the assessment to determine the normality of the scores for the perception of each technology utilized for mentor-novice teacher communication are reported in Table 4.16.

Electronic Mail

Electronic mail was perceived as the most effective in supporting novice teachers emotionally. The mean score of electronic mail was of 5.00 with four participants

responding. This calculation appeared to signify that they perceived electronic mail as very effective.

Telephone

The mean score of the mentor's perceptions of the effectiveness of the telephone usage was computed to be 4.75 with a standard deviation of 0.46. When this value was compared to the trimmed mean score of 4.78, it was found to be close to the original mean score. This seemed to demonstrate that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.00. This was found to be less than 0.05 seeming to signify that the distribution of scores was not normal. A skewness value of -1.44 appeared to indicate that the scores were negatively skewed with high scores. The Kurtosis value of 0.00 seemed to indicate that the curve was normal, which confirmed the Kolmogorov-Smirnov statistic. A review of the histogram indicated that the values were not normally distributed (see Table 4.16 and Figure 4.19).

TABLE 4.16. Mentors' Perceptions of the Effectiveness of Technological Venues
Utilized for Mentor-Novice Teacher Communication

Technology	<i>N</i> Mentors	<i>M</i>	SD	5%			
				Trimmed Mean score	Kolmogorov- Simirnov	Skewness	Kurtosis
Electronic Mail	4	5.00		Scores remained Constant			
Telephones	8	4.75	0.46	4.78	0.00	-1.44	0.00
Bulletin Boards	30	4.40	0.81	4.50	0.00	-1.71	3.32
Video Conferencing	10	4.00	1.63	4.11	0.11	-1.53	0.00
Other	26	3.88	1.09	3.92	0.00	-0.43	-1.10
Chats	18	3.78	1.06	3.81	0.03	-0.19	-1.25
Face-to-face Meetings	18	2.89	1.13	2.88	0.01	0.24	0.00

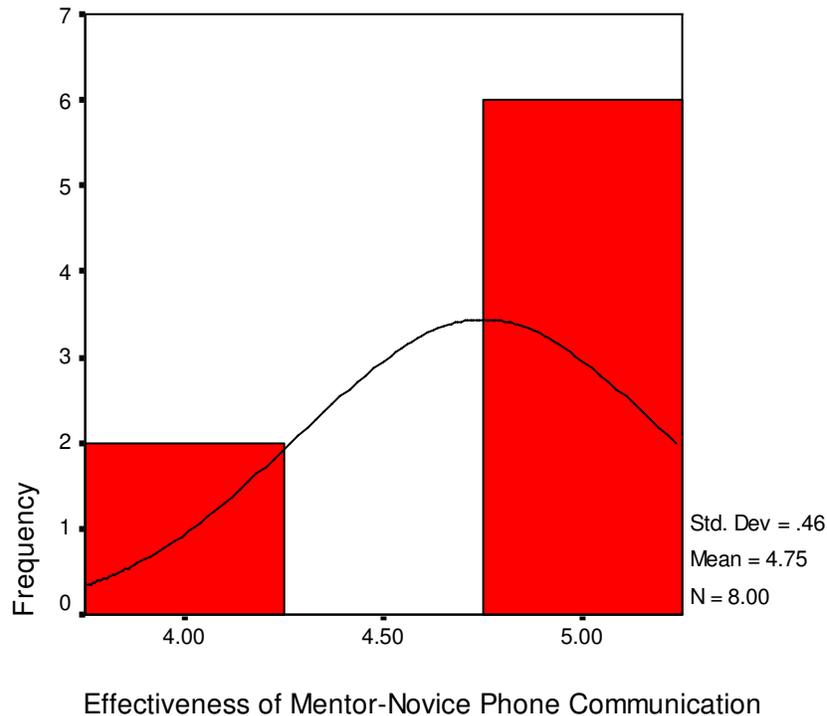


FIGURE 4.19. Histogram of Perceived Effectiveness of Mentor-Novice Teacher Telephone Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the use of the telephone for emotional support “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of telephone use failed to align near or on the line of expected value; thereby supporting the conclusion that the values failed to fit a normal distribution (see Figure 4.20).

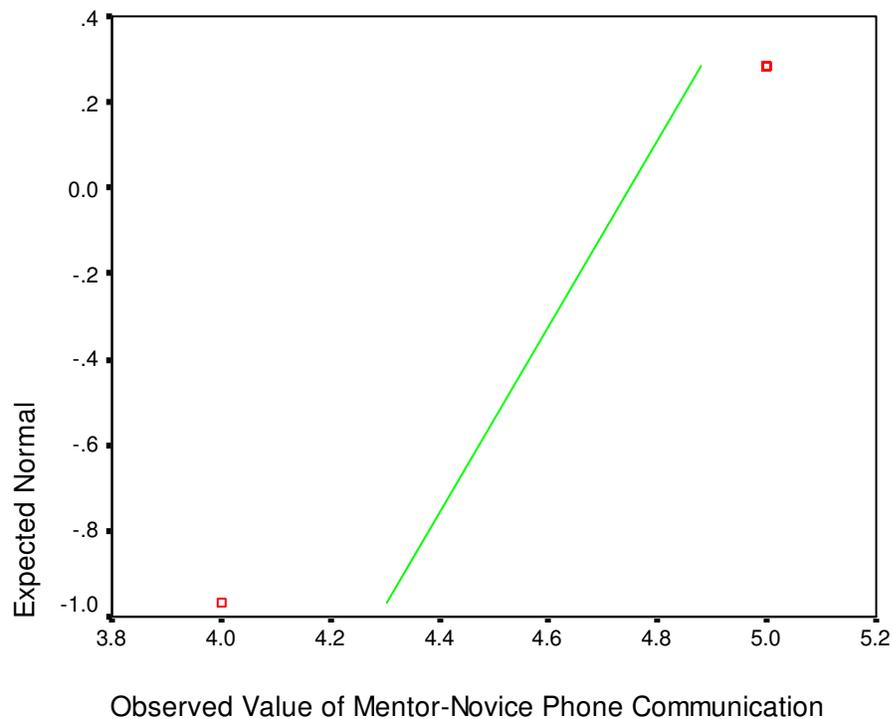


FIGURE 4.20. Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Telephone Communication

Electronic Bulletin Boards

The mean score of the mentor's perceptions of the effectiveness of the use of bulletin boards for emotional support was computed to be 4.40 with a standard deviation of 0.81. When the trimmed mean score, 4.50, was compared to the mean score to examine the effect of the outliers, it was found to be similar to the original calculation; thus appearing to signify that the effect of the outlier scores was minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed at 0.00, which was less than 0.05; thereby appearing to specify that the distribution of scores was not normal. A skewness value of -1.71 seemed to suggest that the perception scores were negatively skewed with a cluster of high scores. The Kurtosis value of 3.32 appeared to demonstrate that the curve was peaked. A review of the histogram seemed to indicate that the values were not normally distributed (see Table 4.16 and Figure 4.21).

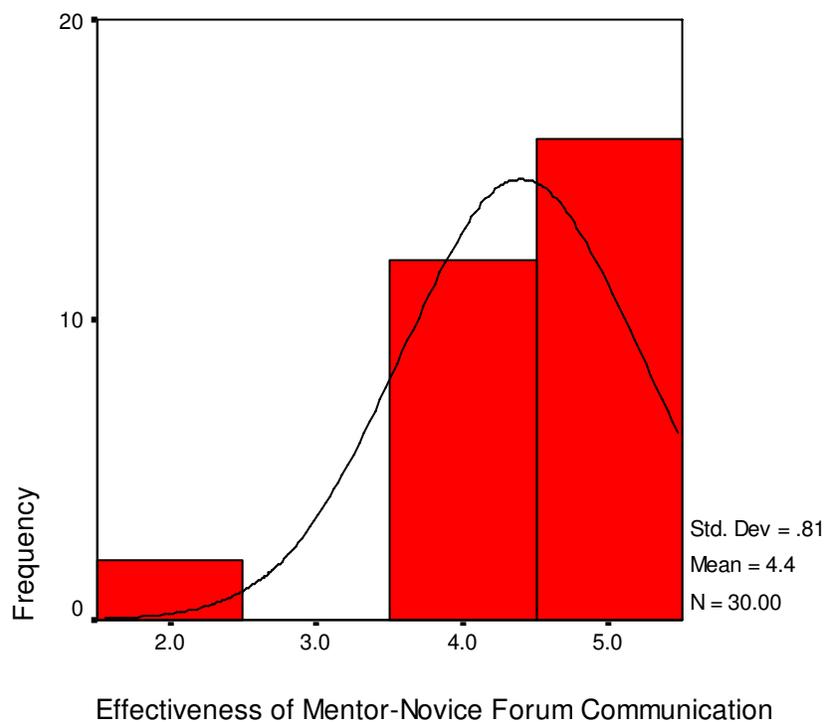


FIGURE 4.21. Histogram of Perceived Effectiveness of Mentor-Novice Teacher
 Bulletin Board Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the use of electronic bulletin boards “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values of the mentor’s perceptions of the effectiveness for using electronic bulletin boards failed to align near or on the line of expected value; thereby supporting the conclusion that the values were skewed (see Figure 4.22).

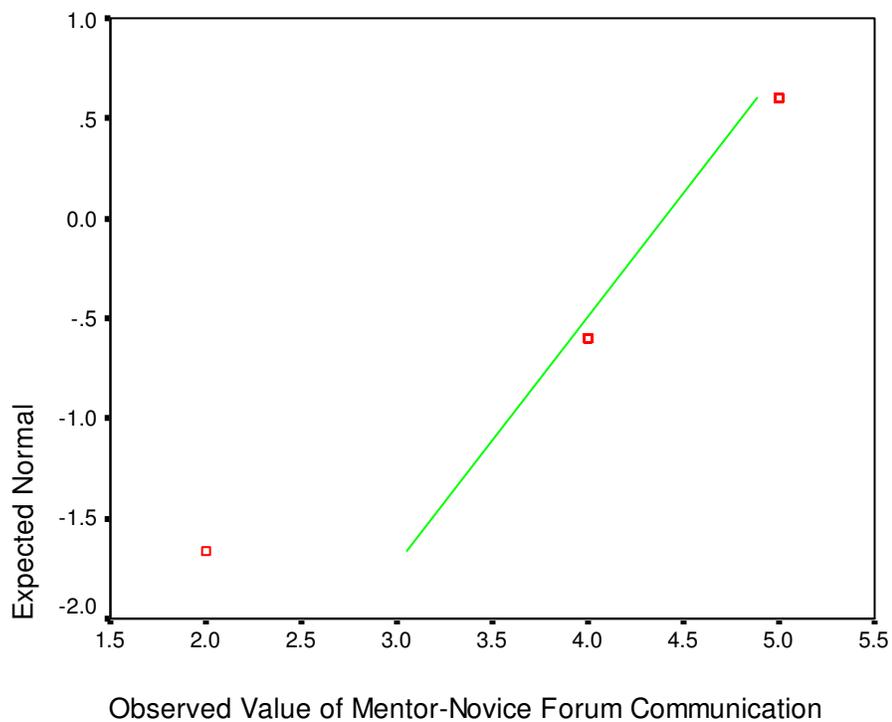


FIGURE 4.22. Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Bulletin Board Communication

Chats

The mean score of the mentor's perceptions of the effectiveness of the utilization of chats to communicate with novice teachers was computed to be 3.78 with a standard deviation of 1.06. When this value was compared to the trimmed mean score to examine the effect of the outliers, it was found to be 3.81, which was close to the original calculation. This seemed to specify that the effect of the outlier scores were minimal.

To test the normality of the scores of mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.03 which was less than 0.05; thus appearing to signify that the distribution of scores was not normal. A skewness value of -0.18 appeared to indicate that the perception scores were slightly negatively skewed. The Kurtosis value of -1.25 appeared to indicate that the curve was flat rather than peaked. A review of the histogram indicated that the values were not normally distributed (see Table 4.16 and Figure 4.23).

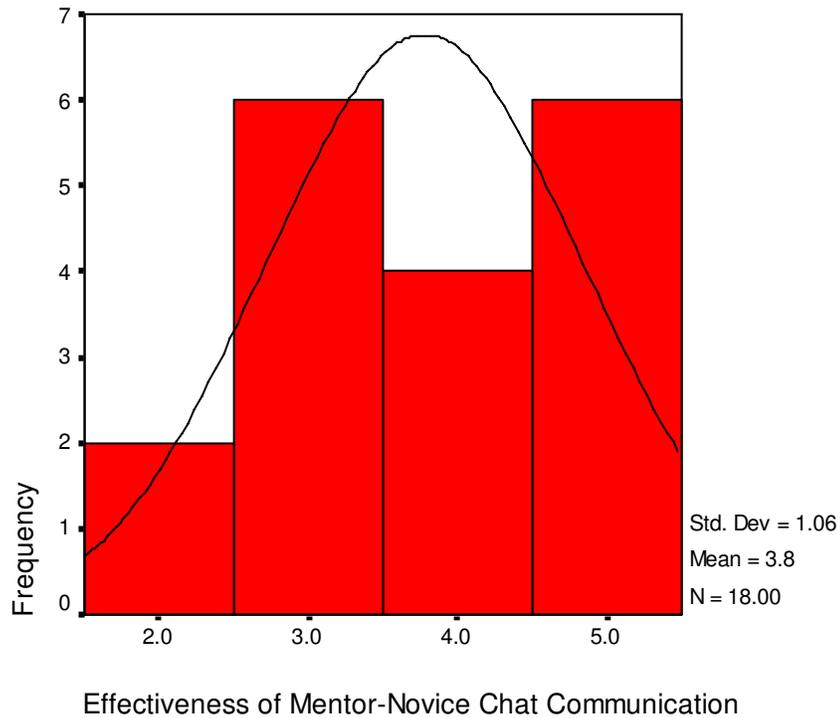


FIGURE 4.23. Histogram of Perceived Effectiveness of Mentor-Novice Teacher Chat Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of chats “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of chats failed to align near or on the line of expected value; thereby supporting the conclusion that the values were skewed as a result of the consistently high scores (see Figure 4.24).

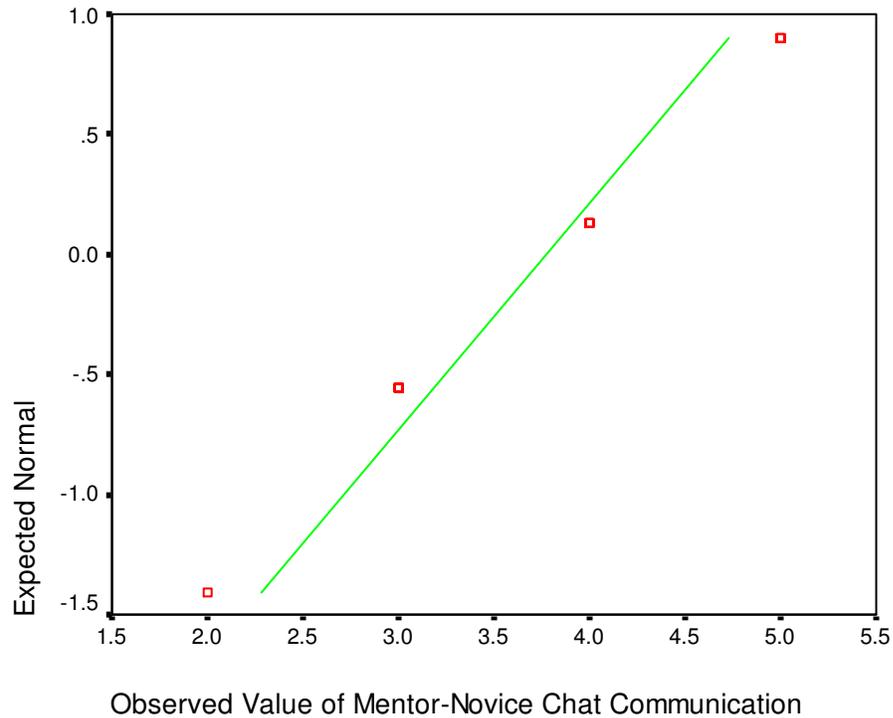


FIGURE 4.24. Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Chat Communication

Face-to-Face Meetings between Mentors and Novice Teachers

The mean score of the mentor's perceptions of the effectiveness of the use of face-to-face meetings to facilitate communication between mentors and novice teachers was computed to be 2.89 with a standard deviation of 1.13. When this value was compared to the trimmed mean score to examine the effect of the outliers, 2.88 was found to be close to the original calculation. This appeared to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.01, which was less than 0.05. This appeared to signify that the distribution of scores was not normal. A skewness value of 0.24 seemed to indicate that the perception scores were positively skewed. The Kurtosis value of 0.00 appeared to indicate that the curve was normal, thereby contradicting the Kolmogorov-Smirnov statistic. An analysis of the histogram appeared to demonstrate that the perception scores were positively skewed (see Table 4.16 and Figure 4.25).

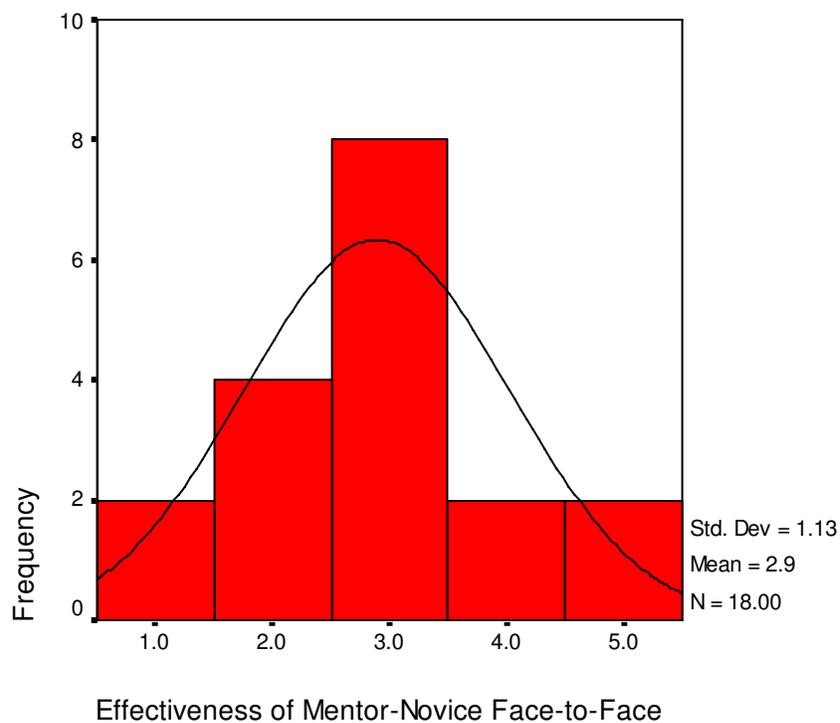


FIGURE 4.25. Histogram of Perceived Effectiveness of Mentor-Novice Teacher Face-to-face Meetings Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the utilization of face-to-face meetings between the mentor and novice teacher “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of face-to-face meetings failed to align near or on the line of expected value; thereby supporting the conclusion that the values were skewed as a result of consistently lower scores (see Figure 4.26).

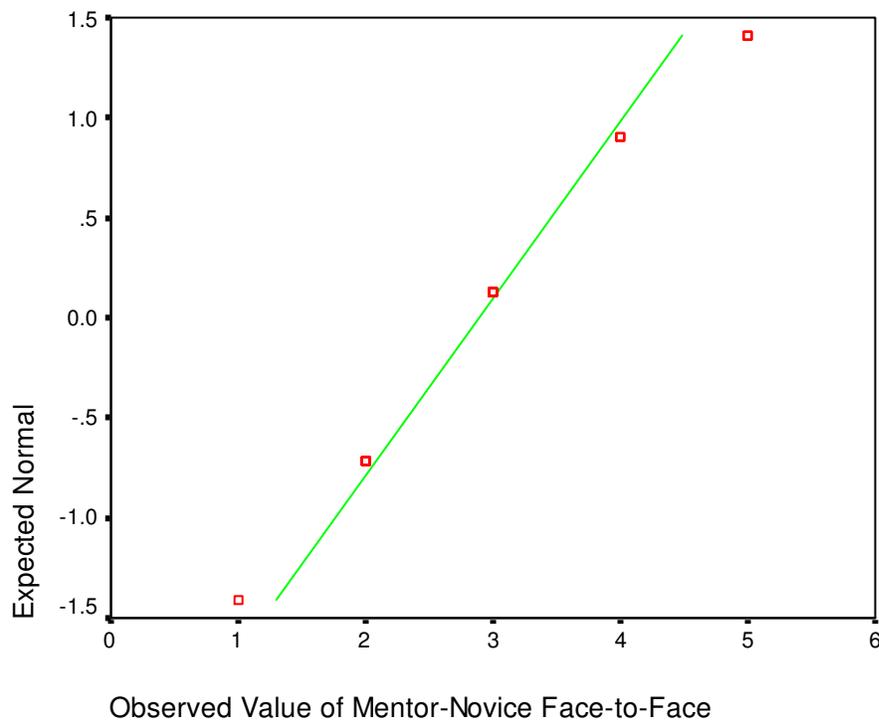


FIGURE 4.26. Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Face-to-face Meetings Communication

Video Conferencing

The mean score of the mentor's perceptions of the effectiveness of video conferencing was computed to be 4.00 with a standard deviation of 1.63. When this value was compared to the trimmed mean score of 4.11 to examine the effect of the outliers, it was found to be comparable to the original calculation. This appeared to indicate that the effect of the outlier scores were minimal. To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.11 which was greater than 0.05; thus appearing to signify that the distribution of scores was normal. A skewness value of -1.53 appeared to signify that the perception scores were negatively skewed. The Kurtosis value of 0.00 seemed to suggest that the curve was normal supporting the Kolmogorov-Smirnov statistic. Analysis of the histogram seems to indicate that the perception scores were not normally distributed (see Table 4.16 and Figure 4.27).

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of video conferencing "were plotted against the expected value from the normal distribution" (Pallant, 2001/2004, p. 59). The observed values for the mentor's perceptions of the effectiveness of video conferencing for emotional support failed to align near or on the line of expected value; thereby supporting the conclusion that the values were skewed as a result of a cluster of high scores (see Figure 4.28).

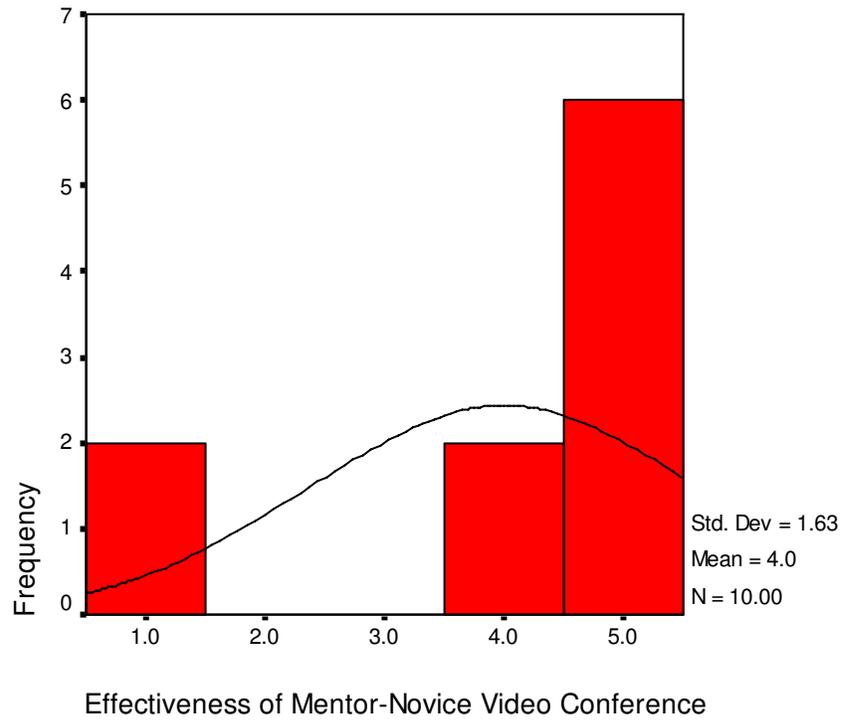


FIGURE 4.27. Histogram of Perceived Effectiveness of Mentor-Novice Teacher Video Conference Communication

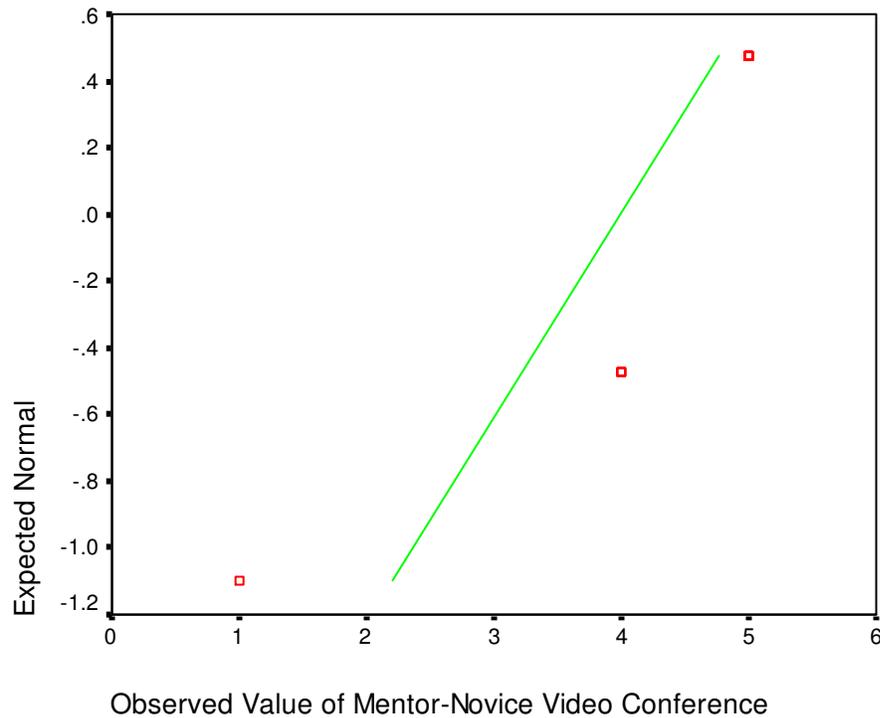


FIGURE 4.28. Normal Q-Q Plot of Perceived Effectiveness of Mentor-Novice Teacher Video Conference Communication

Novice Teacher-Novice Teacher Communication

The mentor's perceptions of the effectiveness of the types of technological modes available to the novice teachers encouraging them to communicate with other novice teachers were also examined. The technological modes evaluated were email, telephones, chats, bulletin boards, face-to-face meetings and video conferencing. Electronic mail and telephones failed to be evaluated by any of the participants. As indicated in Table 4.17, 12 participants perceived chats being most effective with a mean score of 4.00 and a standard deviation of 0.85. The largest number of participants, 16,

perceived the effectiveness of bulletin boards as having a mean score of 3.88 with a standard deviation of 1.09. The mean score of face-to-face meetings was 3.71 with a standard deviation of 1.33 as perceived by 14 participants. Video conferencing was perceived by 10 participants and had a mean score of 3.60 with a standard deviation of 1.58 (see Table 4.17). Assessment results to determine the normality of the scores for the perception of each of the technologies utilized for novice-novice teacher communication are reported in Table 4.17.

Electrons Bulletin Boards

The mean score of the mentor's perceptions of the effectiveness of the bulletin boards for novice-novice teacher communication was computed to be 3.88 with a standard deviation of 1.09. When this value was compared to the trimmed mean score, 3.92, to examine the effect of the outliers, it was found to be similar to the original calculation. These scores seemed to indicate that the effect of the outlier scores was minimal.

To test the normality of the scores of mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.30 which was greater than 0.05; thereby seeming to signify that the distribution of scores was normal. A skewness value of -0.43 appeared to indicate that the perception scores were negatively skewed. The Kurtosis value of -1.01 appeared to indicate that the curve was flat rather than peaked. An analysis of the histogram appeared to indicate that the scores of the mentor's perceptions of the effectiveness of using electronic bulletin boards among novice teachers were negatively skewed (see Table 4.17 and Figure 4.29).

TABLE 4.17. Mentors' Perceptions of the Effectiveness of Technological Venues
Utilized for Novice Teacher-Novice Teacher Communication

Technology	<i>N</i> Mentors	<i>M</i>	<i>SD</i>	5%			
				Trimmed Mean score	Kolmogorov- Simirnov	Skewness	Kurtosis
Email	0						
Telephone	0				No Valid Cases		
Chats	12	4.00	0.85	4.00	0.14	0.00	-1.65
Bulletin Board	16	3.88	1.09	3.92	0.30	-0.43	-1.01
Face-to-face Meetings	14	3.71	1.33	3.74	0.01	-0.31	-1.80
Video Conferencing	10	3.60	1.58	3.67	0.20	-0.87	0.57

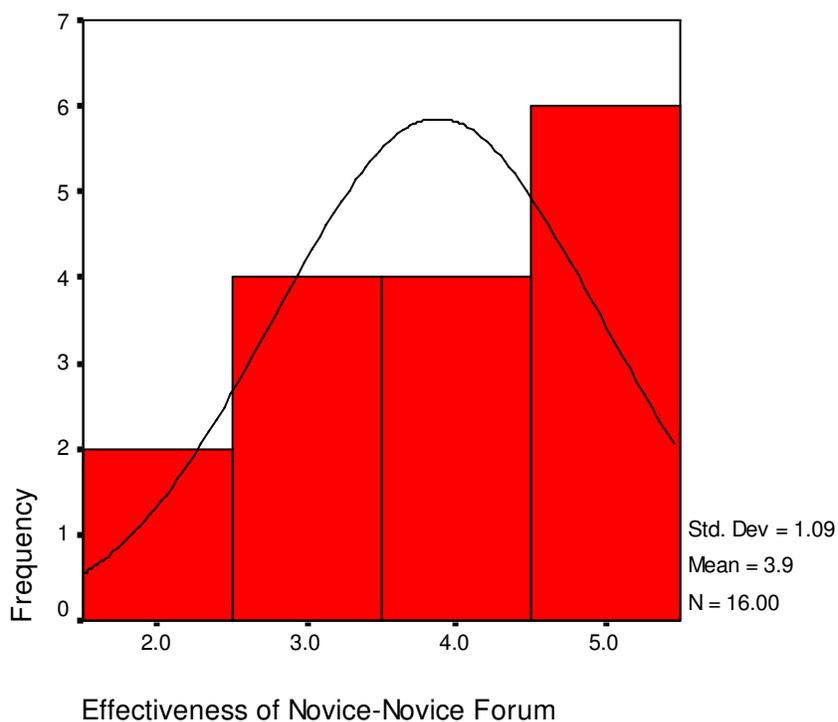


FIGURE 4.29. Histogram of Perceived Effectiveness of Novice-Novice Bulletin Board Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of electronic bulletin boards for communication among novice teachers “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the use of electronic bulletin boards for communication among novice teachers failed to align near or on the line of expected value; thereby supporting the conclusion that the values were skewed as a result of a cluster of higher scores (see Figure 4.30).

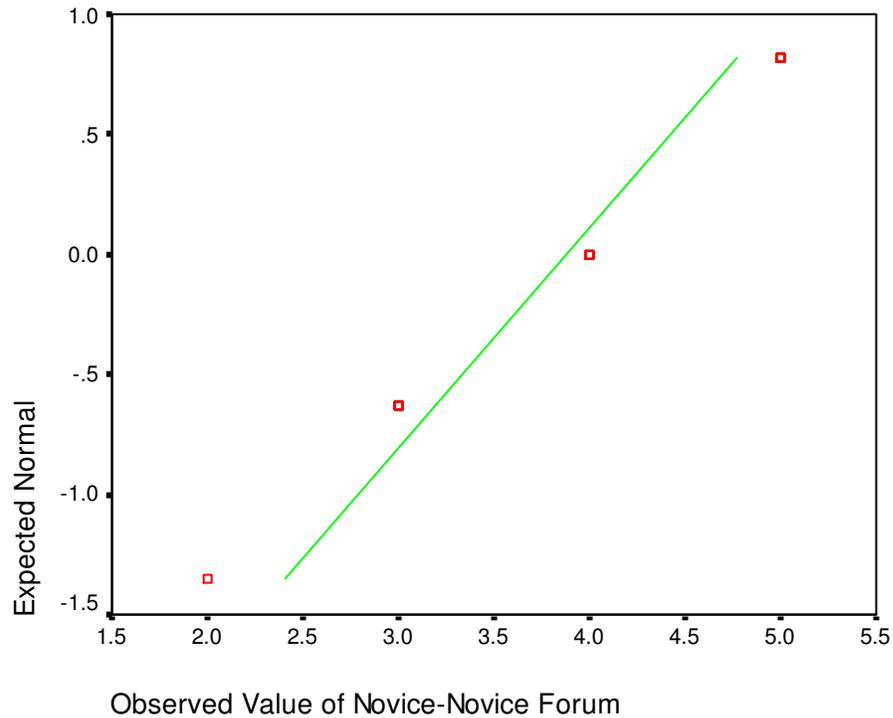


FIGURE 4.30. Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Bulletin Board Communication

Novice Teachers Chats

The mean score of the mentor's perceptions of the effectiveness of the use of chats for novice-novice teacher communication for emotional support was computed to be 4.00 with a standard deviation of 0.85. When this value was compared to the trimmed mean score to examine the effect of the outliers, it was found to be the same as the original calculation. Therefore, this appeared to signify a lack of effect of the outlier scores.

To test the normality of the score of the mentor teachers' perceptions of the use of chats among novice teachers, the Kolmogorov-Smirnov statistic was calculated. The significance was computed at 0.14 which was greater than 0.05. This seemed to indicate that the distribution of scores was normal. A skewness value of -0.31 appeared to specify that the scores of the mentors' perception were negatively skewed. The Kurtosis value of -1.80 seemed to demonstrate that the curve was flat rather than peaked. Analysis of the histogram appeared to show that the scores of mentor's perceptions of the use of chats among novice teachers were not normally distributed (see Table 4.17 and Figure 4.31).

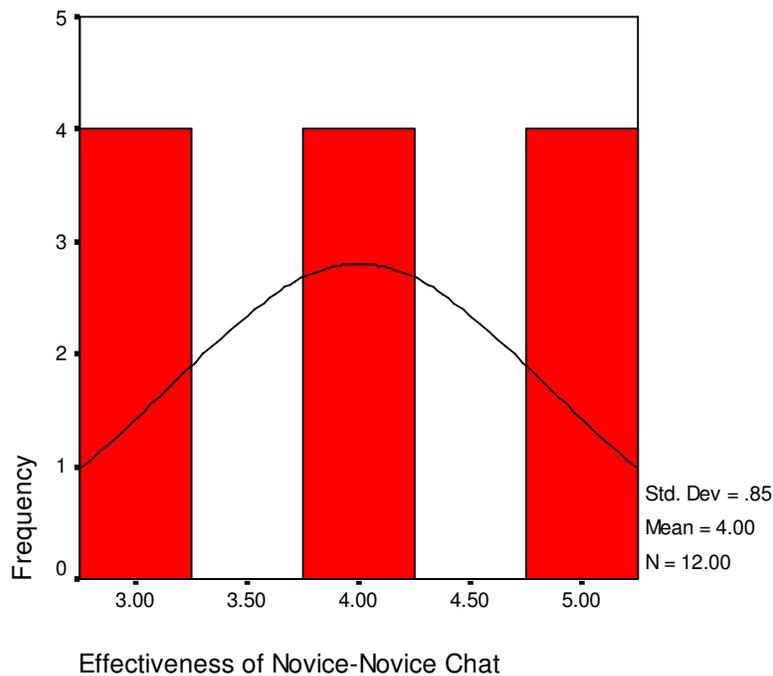


FIGURE 4.31. Histogram of Perceived Effectiveness of Novice-Novice Chat Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the use of chats to communicate among novice teachers “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of chat communication among novice teachers for emotional support failed to align near or on the line of expected value; thereby appearing to support the conclusion that the values were skewed. However, the distribution of scores lacked a consistent pattern (see Figure 4.32).

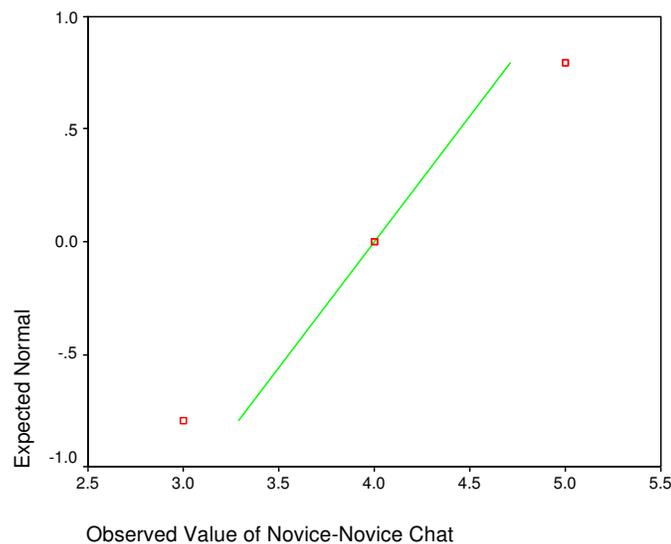


FIGURE 4.32. Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Chat Communication

Face-to-Face Meetings among Novice Teachers

The mean score of the mentor's perceptions of the effectiveness of face-to-face meetings among novice teachers for emotional support was computed to be 3.71 with a standard deviation of 1.33. When this calculation was compared to a trimmed mean score of 3.74 to examine the effect of the outliers, the values were found to be similar. This seemed to demonstrate that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.01 which was less than 0.05; thus, appearing to signify that the distribution of scores was not normal. A skewness value of -0.31 seemed to specify that the scores for the mentors' perceptions were negatively skewed. The Kurtosis value of -1.80 appeared to suggest that the curve was flat rather than peaked. An analysis of the histogram seemed to show that the scores for the mentors' perceptions of chat communication among novice teachers for emotional support were not normally distributed (see Table 4.17 and Figure 4.33).

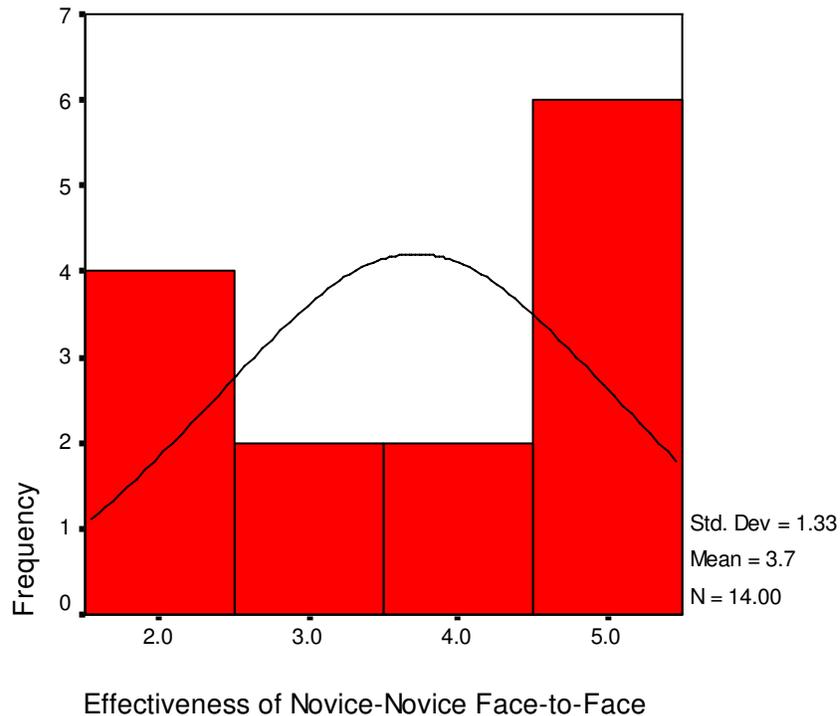


FIGURE 4.33. Histogram of Perceived Effectiveness of Novice-Novice Face-to-face Communication

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the face-to-face meetings among novice teachers “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the face-to-face meetings among novice teachers for emotional support failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed. However, the scores lacked a consistent pattern (see Figure 4.34).

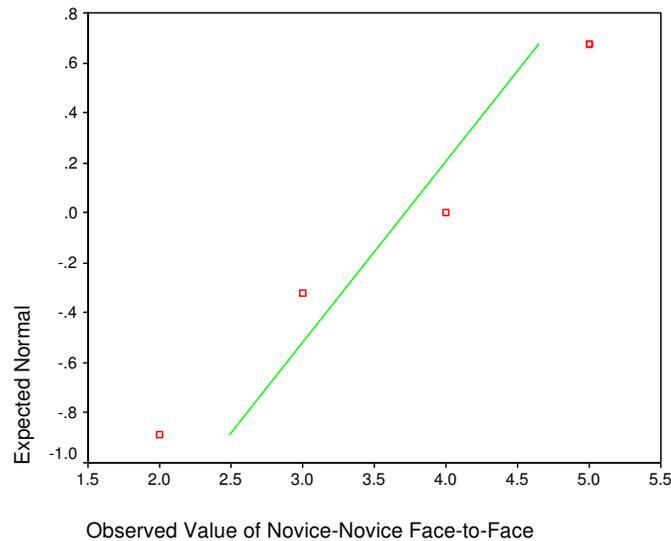


FIGURE 4.34. Normal Q-Q Plot of Perceived Effectiveness of Novice Teacher-Novice Teacher Face-to-face Communication

Video Conferencing among Novice Teachers

The mean score of the mentor's perceptions of the effectiveness of video conference use among novice teachers for emotional support was computed to be 3.60 with a standard deviation of 1.58. When compared with the trimmed mean score of 3.67 to examine the effect of the outliers, the values were found to be similar to the original calculation. This appeared to indicate that the effect of the outlier scores were minimal.

To test the normality of the scores of mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance computed was 0.20 which was greater than 0.05. This seemed to signify that the distribution of scores was normal. A skewness value of -0.87 seemed to specify that the perception scores were negatively skewed with a cluster of high scores. The Kurtosis value of -1.93 appeared to

demonstrate that the curve was flat rather than peaked. An analysis of the histogram of the mentor's perceptions of effectiveness of novice teacher-novice teacher video conferences for emotional support seemed to show that the scores were not normally distributed (see Table 4.17 and Figure 4.35).

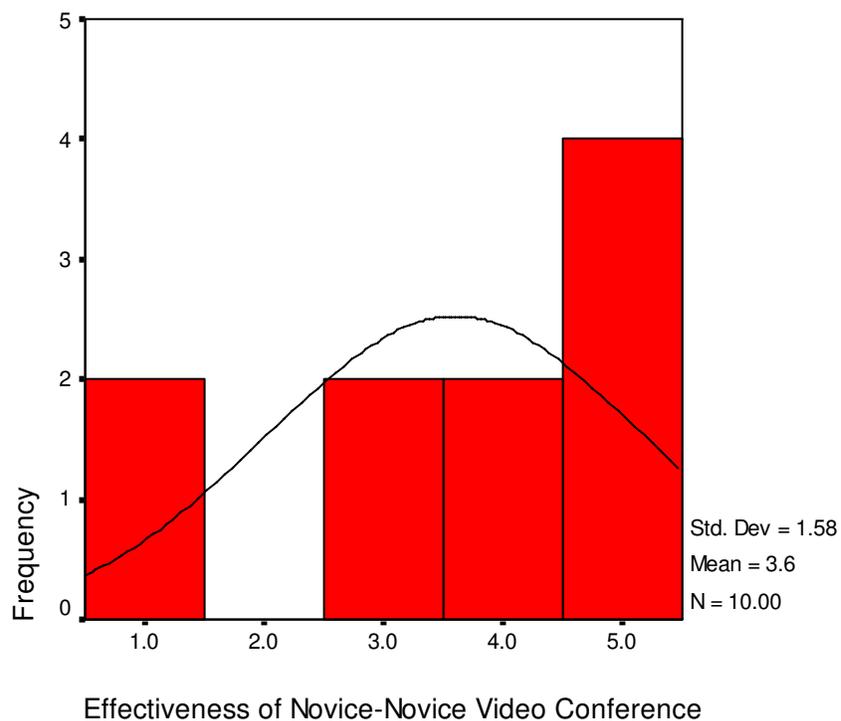


FIGURE 4.35. Histogram of Perceived Effectiveness of Novice Teacher-Novice Teachers Video Conference

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of video conferences among novice teachers for emotional support “were plotted against the expected value from the normal

distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of video conferences among novice teachers for emotional support failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed (see Figure 4.36).

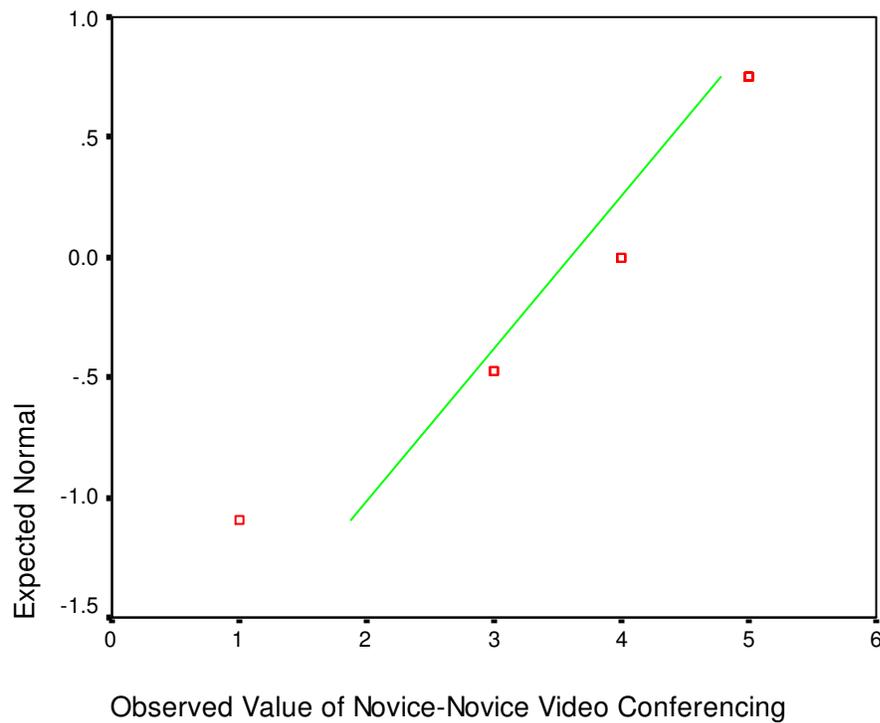


FIGURE 4.36. Normal Q-Q Plot of Perceived Effectiveness of Novice-Novice Video Conferencing

Technological Venues for Formative Observation

The mentor’s perceptions of the effectiveness of the procedures used to complete formative observations including the types of technologies available were also examined

(see Table 4.18). The mean scores examined were face-to-face meetings, videotapes, video conferencing, and audiotapes. As indicated in Table 4.18, face-to-face meetings for conduction formative observations were perceived as the most effective by 10 responding participants with a mean score of 4.00 and a standard deviation of 1.15. The use of videotapes for conduction formative observations was evaluated by 20 participants. A mean score of 3.60 and standard deviation of 0.34 were calculated. Eight participants evaluated video conferencing to conduct formative observations. The mean score of video conferences was 2.25 with a standard deviation of 0.41. Audiotapes were evaluated by 20 participants with a mean score of 1.40 and a standard deviation of 0.50 (see Table 4.18). Assessments to determine the normality of the scores for the perception of each of the technologies utilized for formative observations were completed. The results were reported in Table 4.18.

Face-to-Face Meetings between Mentor and Novice Teacher

The mean score of the mentor's perceptions of the effectiveness of the utilization of face-to-face meetings between mentor and novice teacher to conduct formative observations was computed to be 4.00 with a standard deviation of 1.15. When compared to a trimmed mean score of 4.00 to examine the effect of the outliers, it was found to be the same. This seemed to signify that the outliers failed to affect the mean score. To test the normality of the mentor teachers' perception scores of face-to-face meetings between mentor and novice teacher, the Kolmogorov-Smirnov statistic was calculated. The significance calculated was 0.01 which was less than 0.05. This

appeared to demonstrate that the distribution of scores was not normal. A skewness value of -1.08 seemed to specify that the scores of the mentors' perceptions were

TABLE 4.18. Mentors' Perceptions of the Effectiveness of Technological Venues Utilized for Formative Observations

Method	<i>N</i> Mentors	<i>M</i>	<i>SD</i>	5%			
				Trimmed Mean score	Kolmogorov- Simirnov	Skewness	Kurtosis
Face-to-							
Face	10	4.00	1.15	4.00	0.01	-1.08	0.08
Meetings							
Videotape	20	3.60	1.54	3.67	0.00	-0.43	-1.51
Video	8	2.25	1.16	2.22	0.00	0.81	-0.50
Conference							
Audiotape	20	1.40	0.50	1.39	0.00	0.42	-1.92

negatively skewed with a cluster of high scores. The Kurtosis value of 0.08 appeared to illustrate that the curve peaked. The histogram of the effectiveness of face-to-face meetings between mentor and novice teacher for formative observations appeared to

show that the scores were not normally distributed; however, a small peak existed (see Table 4.18 and Figure 4.37).

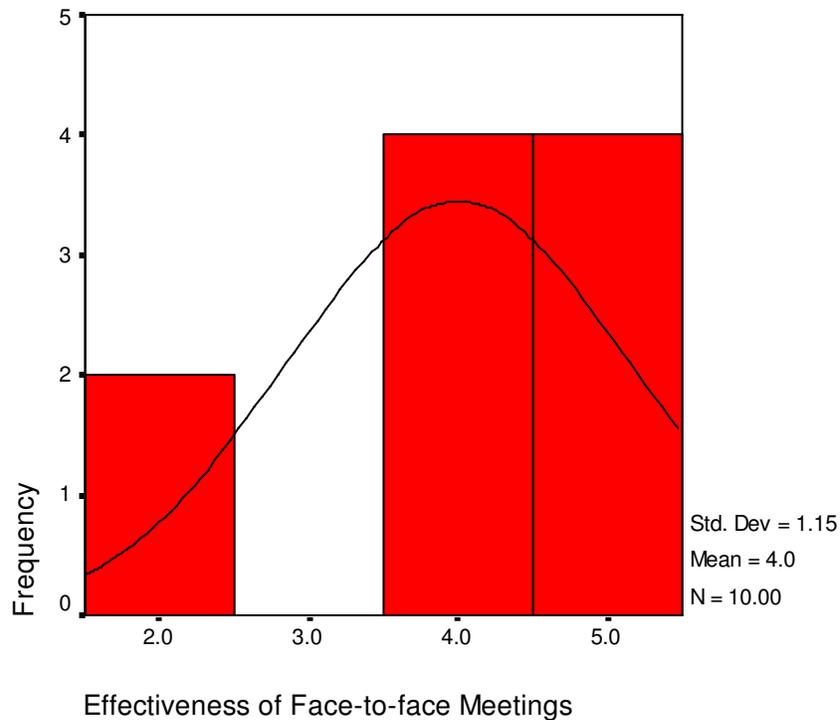


FIGURE 4.37. Histogram of Perceived Effectiveness of Face-to-face Meetings for Formative Observations

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of face-to-face meetings for formative observation between mentor and novice teacher “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the

mentor's perceptions of the effectiveness of face-to-face meetings between mentor and novice teacher for formative observations failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed (see Figure 4.38).

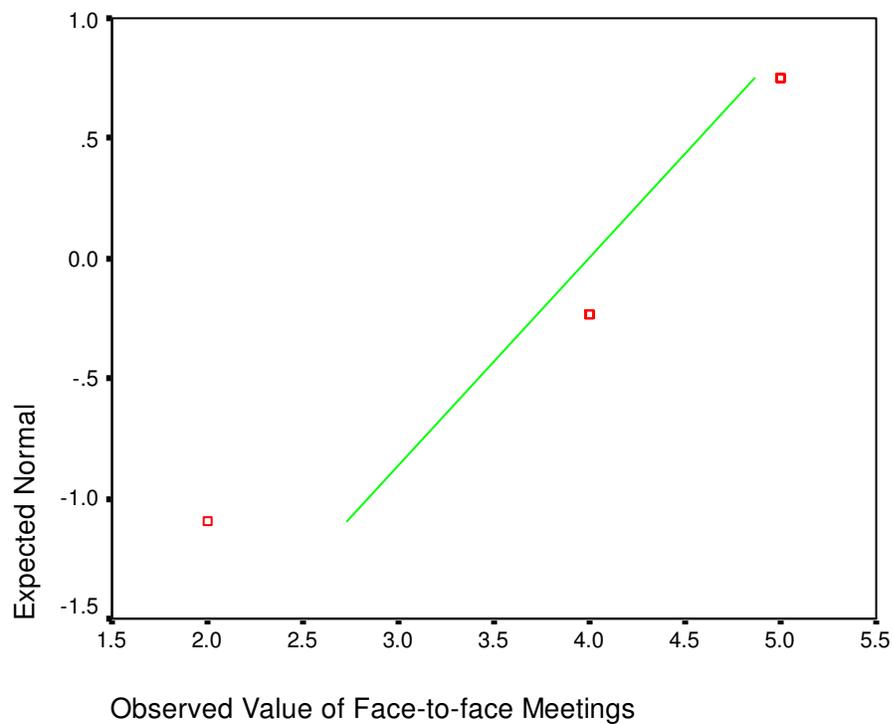


FIGURE 4.38. Normal Q-Q Plot of Perceived Effectiveness of Face-to-face Meetings
Formative Observations

Videotapes

The mean score of the mentor's perceptions of the effectiveness of the use of videotapes to conduct formative observations was computed to be 3.60 with a standard deviation of 1.54. When compared to a trimmed mean score of 3.67 to examine the effect of the outliers, the values were found to be similar. This appeared to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was calculated to be 0.00, which was less than 0.05. This seemed to demonstrate that the distribution of scores was not normal. A skewness value of -0.43 appeared to illustrate that the scores of the mentors' perceptions were negatively skewed; however, a consistent pattern was not indicated. Further, the Kurtosis value of -1.51 seemed to indicate that the curve was flat rather than peaked. Analysis of the histogram of the effectiveness of videotapes for conducting formative observations appeared to support the conclusion that the scores were not normally distributed (see Table 4.18 and Figure 4.39).

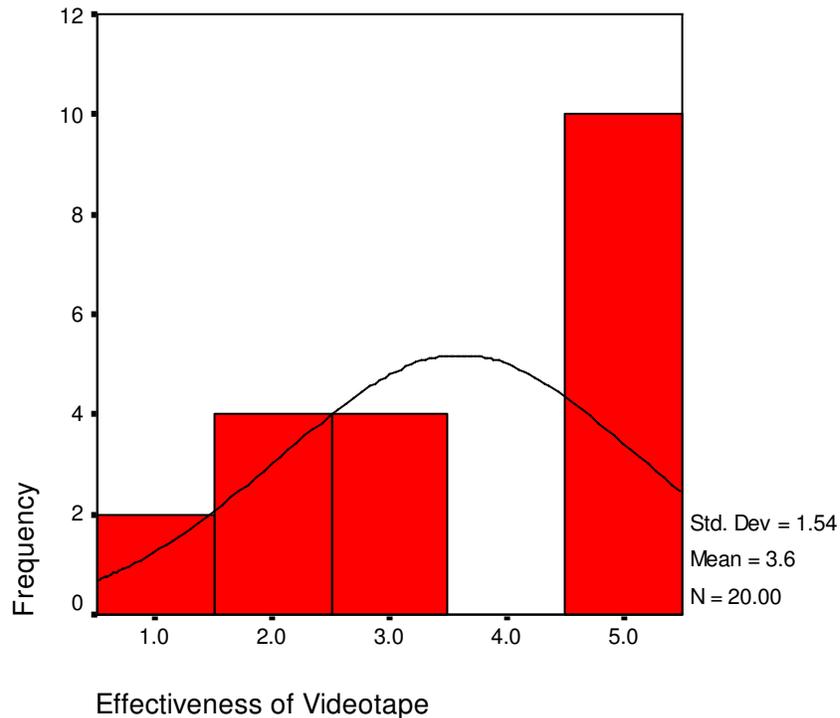


FIGURE 4.39. Histogram of Perceived Effectiveness of Videotaped
Formative Observations

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of videotapes to conduct formative observations “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the use of videotapes to complete formative observations failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed (see Figure 4.40).

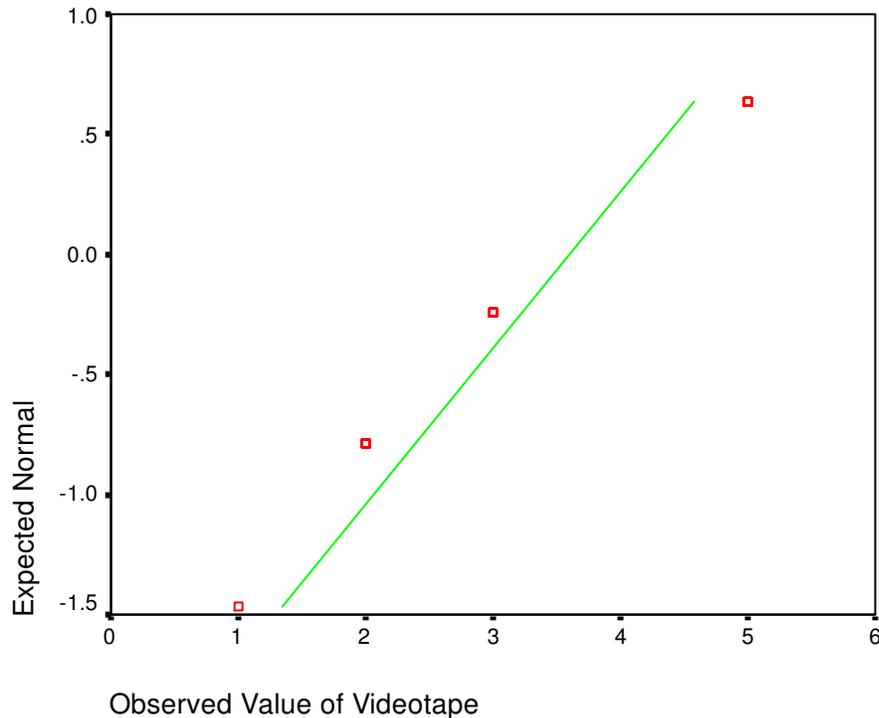


FIGURE 4.40. Normal Q-Q Plot of Perceived Effectiveness of Videotaped Formative Observations

Video Conferencing

The mean score of the scores mentor's perceptions of the effectiveness of the use of video conferencing to complete formative observations was computed to be 2.25 with a standard deviation of 1.16. When the trimmed mean score of 2.22 was compared with the mean score to examine the effect of the outliers, the values were found to be similar. This seemed to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be

0.00 which was less than 0.05. This seemed to specify that the distribution of scores was not normal. A skewness value of 0.81 appeared to illustrate that the scores of the mentors' perceptions were positively skewed with a cluster of low scores. The Kurtosis value of -0.50 appeared to indicate that the curve was flat. The histogram plot of the effectiveness scores seemed to support the conclusion that the scores were not normally distributed (see Table 4.18 and Figure 4.41).

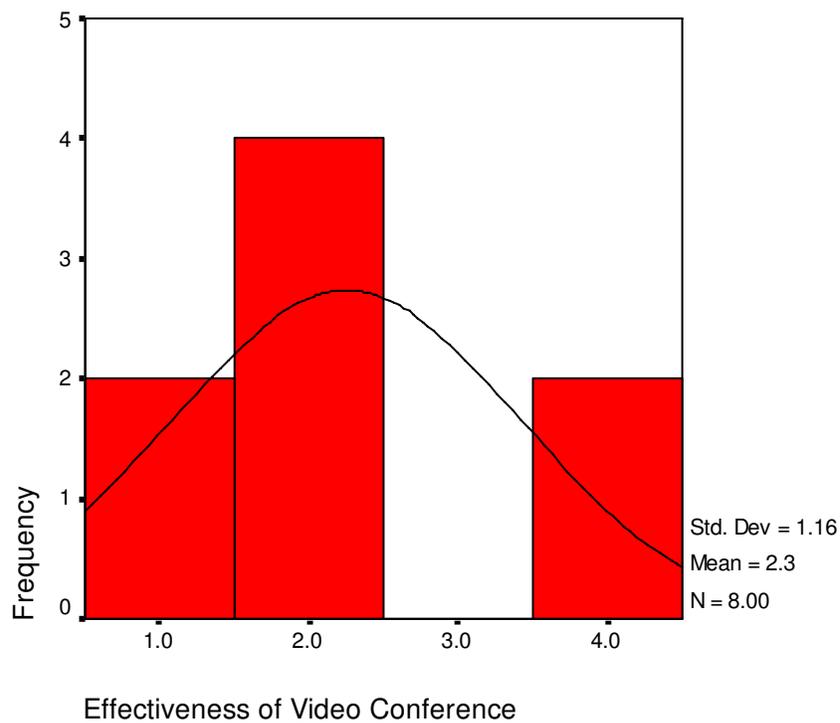


FIGURE 4.41. Histogram of Perceived Effectiveness of Video Conferencing to Conduct Formative Observations

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of video conferencing to conduct formative observations “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of this practice failed to align near or on the line of expected value; thereby seeming to support the conclusion that the values were skewed (see Figure 4.42).

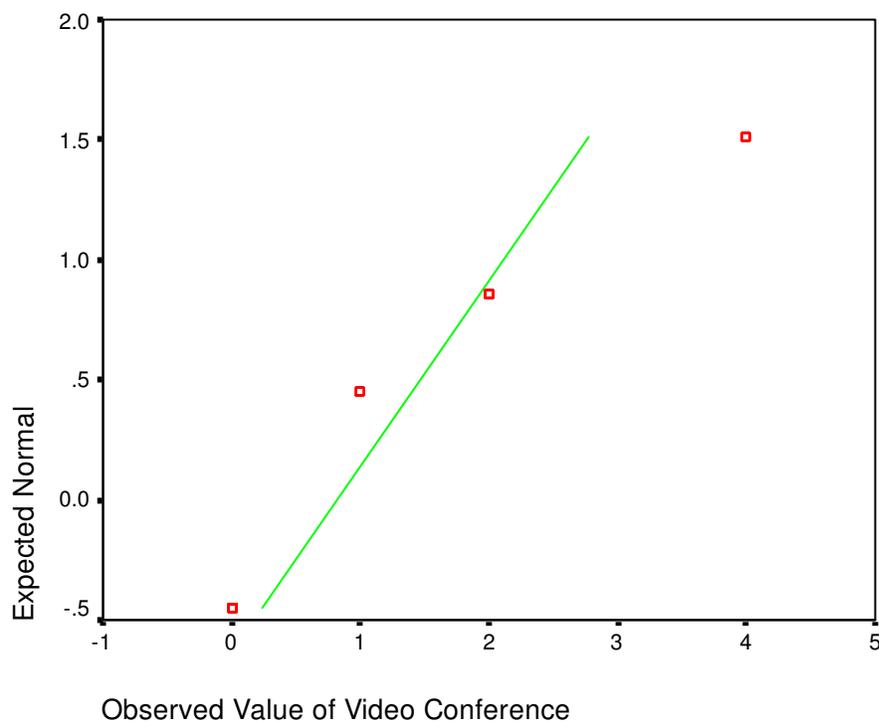


FIGURE 4.42. Normal Q-Q Plot of Perceived Effectiveness of Video Conferencing to Conduct Formative Observations

Audiotapes

The mean score of the mentor's perceptions of the effectiveness of the use of audiotapes to complete formative observations was computed to be 1.40 with a standard deviation of 0.50. When compared to the trimmed mean score of 1.39, the values were found to be similar seeming to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.00 which was less than 0.05. This appeared to demonstrate that the distribution of scores was not normal. A skewness value of 0.42 appeared to specify that the mentors' perception scores were positively skewed. The Kurtosis value of -1.92 seemed to indicate that the curve was flat rather than peaked. Analysis of the histogram of the effectiveness scores of utilizing audiotapes for formative observations seems to show that the scores were widely distributed and fail to fall within a normal distribution (see Table 4.18 and Figure 4.43).

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the utilization to conduct audiotapes for formative observations "were plotted against the expected value from the normal distribution" (Pallant, 2001/2004, p. 59). The observed values for the mentor's perceptions of the effectiveness of the use of audiotapes for formative observations failed to align near or on the line of expected value; thereby appearing to support the conclusion that the values were skewed. However, the distribution of scores lacked a consistent pattern (see Figure 4.44).

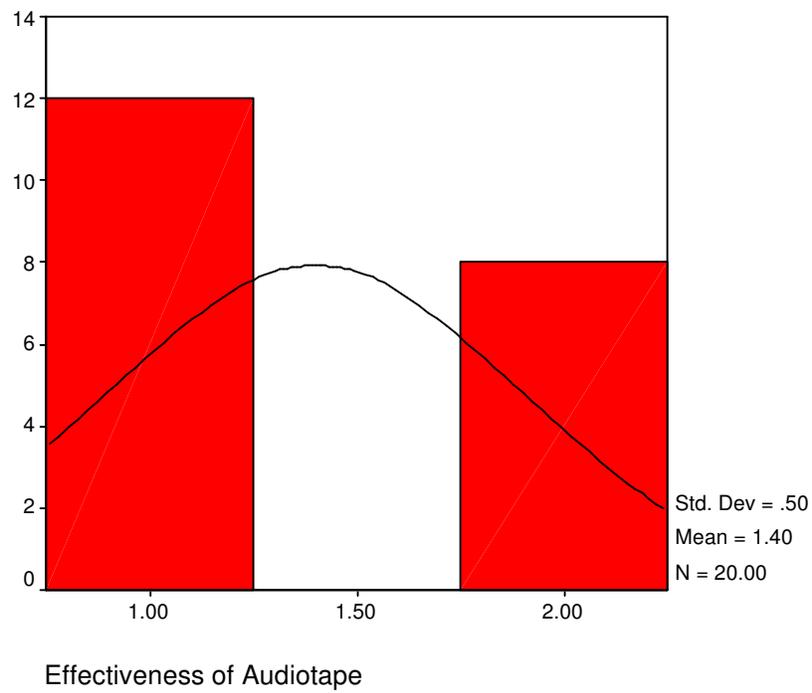


FIGURE 4.43. Histogram of Perceived Effectiveness of Audiotape

Formative Observations

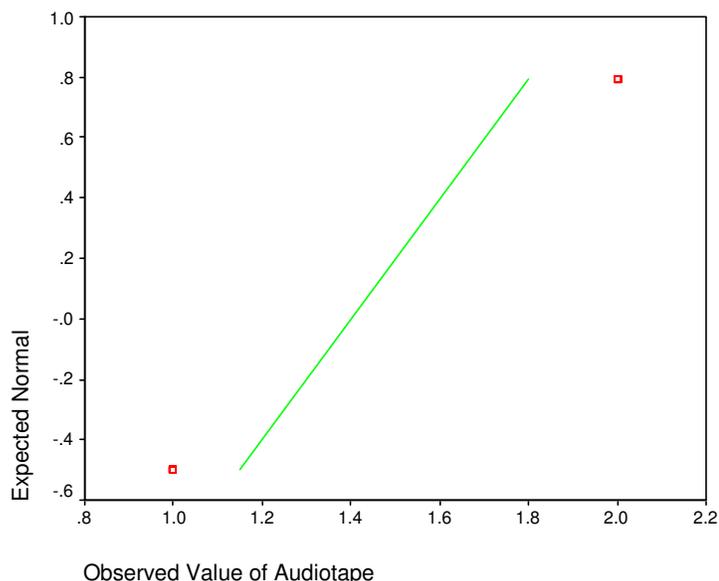


FIGURE 4.44. Normal Q-Q Plot of Perceived Effectiveness of Audiotaped Formative Observations

Technological Venues for Reflection

The mentor's perceptions of the effectiveness of the technological venues available to them for encouraging novice teachers to reflect on their instructional practices were also examined. Chats, electronic mail, bulletin boards, face-to-face meetings with other novice teachers and face-to-face meetings with mentors were evaluated. The mentors attested that the online teacher induction programs with which they were involved incorporated a variety of technological venues for reflection. As indicated in Table 4.19, chats were perceived by 24 participants as the most effective and a mean score of 4.50 with a standard deviation of 0.10. Electronic mail was perceived by 24 participants as effective with a mean score of 4.33 and standard

deviation of 0.16. Two participants consistently reported their perceptions of the effectiveness of bulletin board use with a score of 4.00. The mean score of face-to-face meetings with other novice teachers evaluated by 24 participants was 3.50 with a standard deviation of 0.22. The venue that was perceived as the least effective by 20 participants was face-to-face meetings between mentors and novice teachers. The mean score in this venue was 3.00 with a standard deviation of 0.21 (see Table 4.19).

Assessments to determine the normality of the scores for the perception of each of the technological venues utilized for mentors to encourage novice teachers to reflect on their instructional practices were calculated. The results were reported in Table 4.19.

Chats

The mean score of the mentor's perceptions of the effectiveness of the use of chats to reflect on instructional practice was computed to be 4.50 with a standard deviation of 0.51. When compared to the trimmed mean score of 4.50, the values were found to be the same. This seemed to signify that the outlier scores had minimal effect.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed at 0.00 which was less than 0.05. This calculation appeared to demonstrate that the distribution of scores was not normal. A skewness value of 0.00 appeared to specify that the mentor's perceptions of the effectiveness scores of the use of chats were not skewed. The Kurtosis value of -2.19 appeared to illustrate that the curve was flat rather than peaked. An analysis of the histogram for the effectiveness of the use of chats for

reflection on instructional practices appeared to show that the scores were split and not normally distributed (see Table 4.19 and Figure 4.45).

TABLE 4.19. Mentors' Perceptions of the Effectiveness of Technological Venues Utilized for Reflection

Venues	<i>N</i> Mentors	<i>M</i>	<i>SD</i>	5%			
				Trimmed Mean score	Kolmogorov- Smirnov	Skewness	Kurtosis
Chats	24	4.50	0.51	4.50	0.00	0.00	-2.19
Email	24	4.33	0.76	4.37		-0.67	-0.90
Bulletin Board	2	4.00			Constant		
Novice Teachers	24	3.50	1.06	3.57	0.00	-0.71	0.47
Face-to- face Mentors	20	3.00	0.92	3.06	0.00	-0.91	0.54

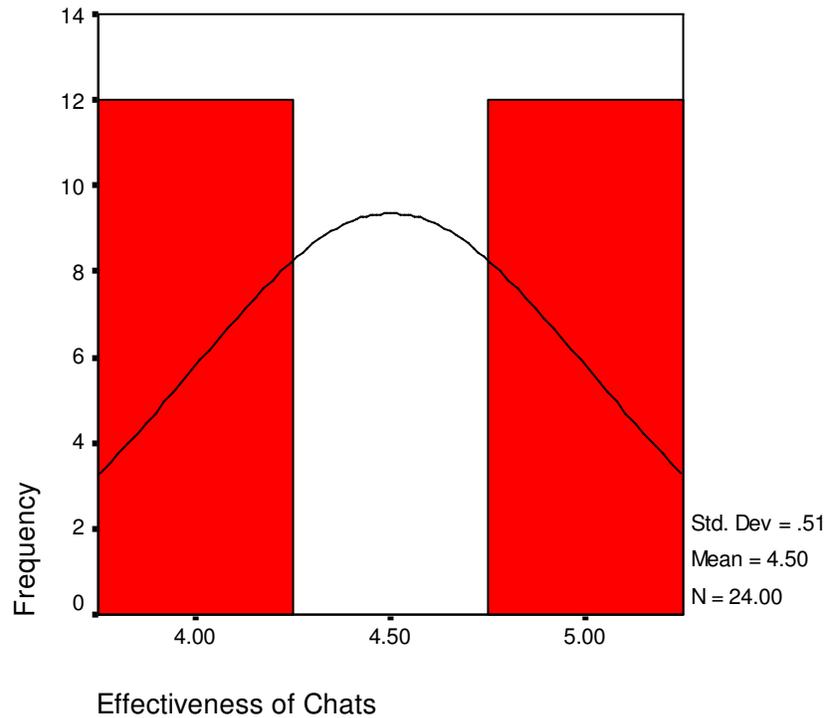


FIGURE 4.45. Histogram of Perceived Effectiveness of Chats for Reflection on Instructional Practices

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of the use of chats for reflection on instructional practices “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values for the mentor’s perceptions of the effectiveness of the use of chats for reflection failed to align near or on the line of expected value; thereby seeming to substantiate the conclusion that the values were skewed (see Figure 4.46).

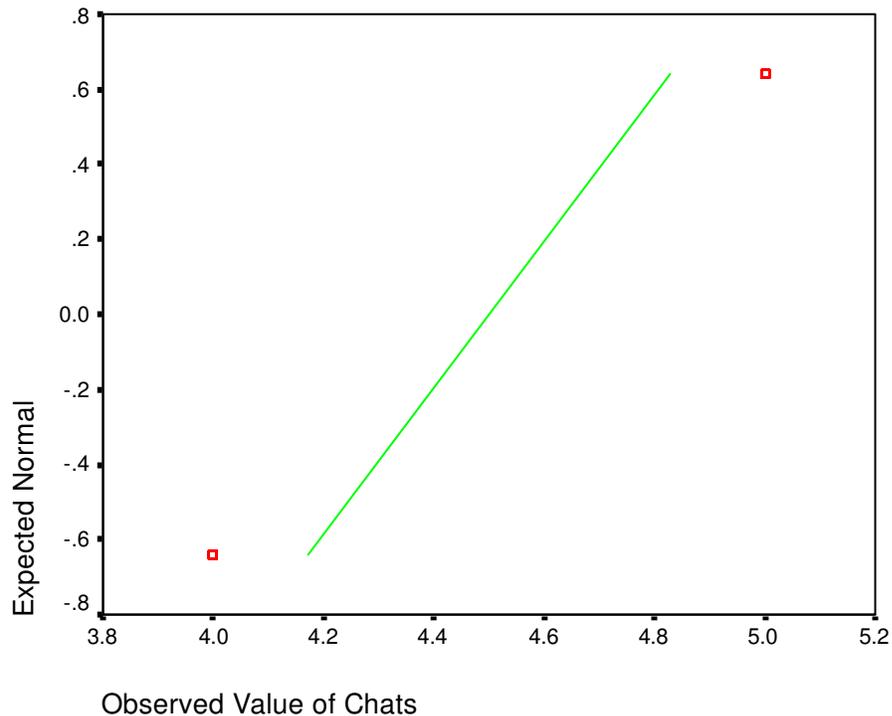


FIGURE 4.46. Normal Q-Q Plot of Perceived Effectiveness of Chats for Reflection on Instructional Practices

Electronic Mail

The mean score of the mentor's perceptions of the effectiveness of the utilization of electronic mail to reflect on instructional practices was computed to be 4.33 with a standard deviation of 0.76. When the trimmed mean score of 4.37 was compared to the mean, it was found to be similar; therefore, the effect of the outlier scores appeared to be minimal.

To test the normality of the mentor teachers' perception scores, the Kolmogorov-Simirnov statistic was calculated. The significance was computed at 0.00 which was

less than 0.05. This seemed to demonstrate that the distribution of scores was not normal. A skewness value of -0.67 appeared to illustrate that the mentor's perceptions of the effectiveness scores of the effectiveness of electron mail for reflection on instructional practices were negatively skewed. The Kurtosis value of -0.90 appeared to specify that the curve was flat. Analysis of the histogram for the effectiveness of electronic mail seemed to show that the scores are not normally distributed. However, the distribution of scores appeared to cluster at the high end of the scale (see Table 4.19 and Figure 4.47).

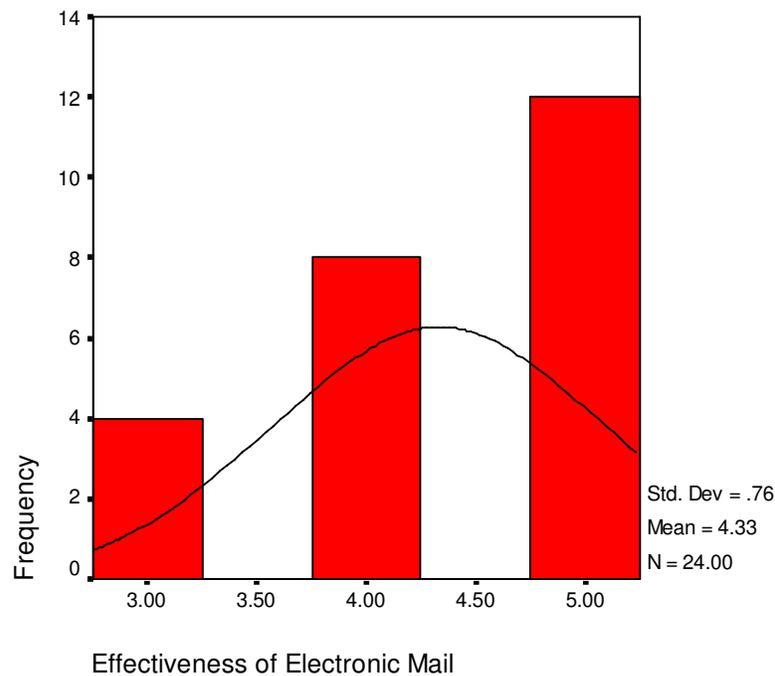


FIGURE 4.47. Histogram of Perceived Effectiveness of Electronic Mail for Reflection on Instructional Practices

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of novice teachers reflecting on instructional practices by electronic mail “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed value for the mentor’s perceptions of the effectiveness of reflections through electronic mail failed to align near or on the line of expected value; thereby seeming to substantiate the conclusion that the values were skewed (see Figure 4.48).

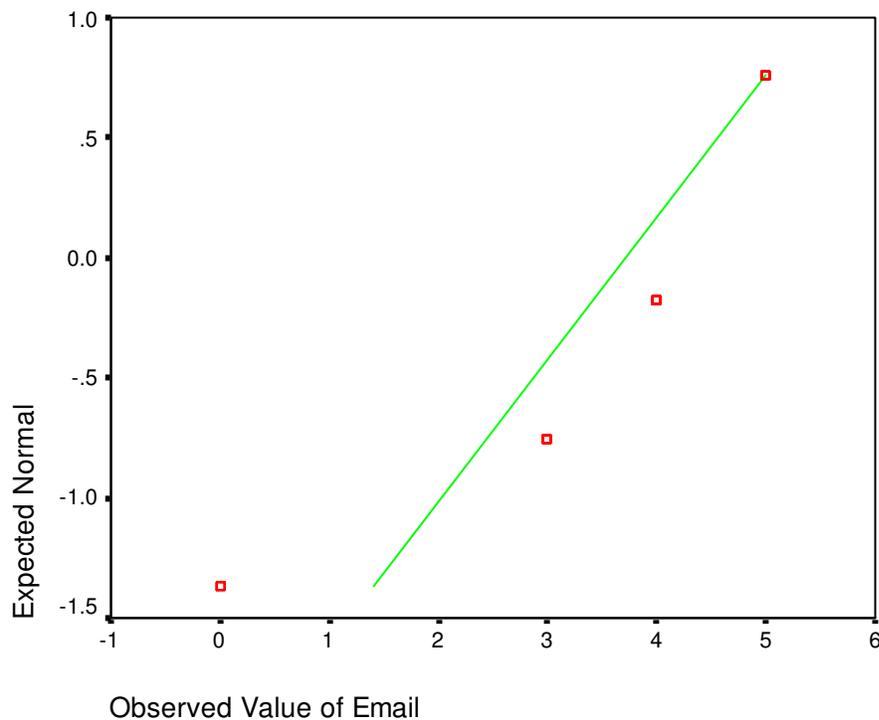


FIGURE 4.48. Normal Q-Q Plot of Perceived Effectiveness of Email

Face-to-Face Meetings between Mentors and Novice Teachers

The mean score of the mentor's perceptions of the effectiveness of the face-to-face meetings between the mentors and novice teachers to encourage reflection on instructional practices was computed to be 3.00 with a standard deviation of 0.92. When compared to a trimmed mean score of 3.06, the values were similar seemed to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of the mentor teachers' perceptions, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.00, which was less than 0.05. This seemed to demonstrate that the distribution of scores was not normal. A skewness value of -0.91 appeared to specify that the scores of the mentor's perceptions of the effectiveness scores of the use of face-to-face meetings between mentors and novice teachers were negatively skewed by high scores. The Kurtosis value of 0.54 appeared to illustrate that the curve peaked. Analysis of the histogram for the effectiveness of face-to-face meetings between mentors and novice teachers to encourage reflection on instructional practices seemed to show that the scores were not normally distributed (see Table 4.19 and Figure 4.49).

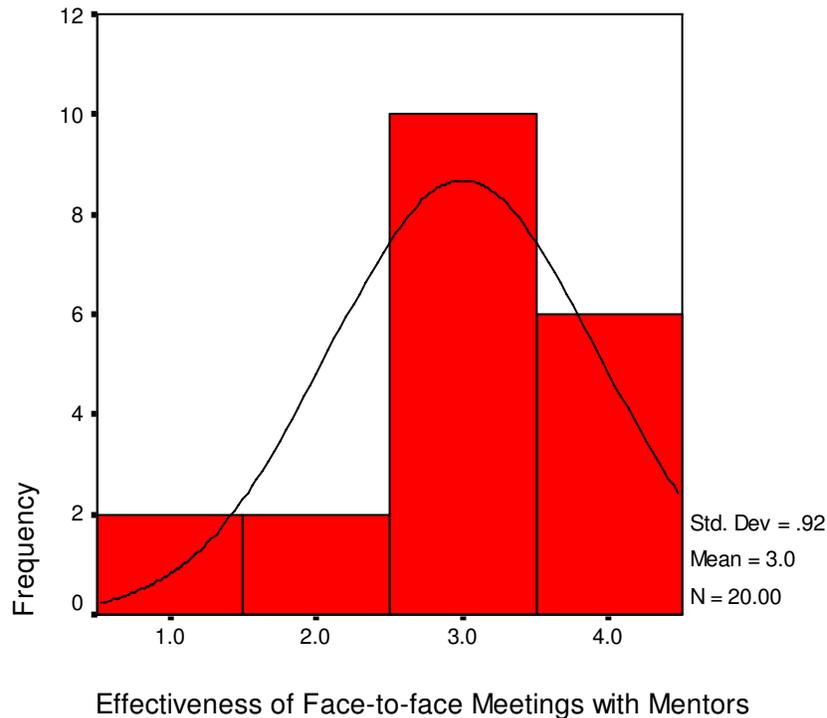


FIGURE 4.49 Histogram of Perceived Effectiveness of Face-to-Face Meetings between Mentors and Novice Teachers for Reflection

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of face-to-face meetings between mentors and novice teachers to reflect on instructional practices “were plotted against the expected value from the normal distribution” (Pallant, 2001/2004, p. 59). The observed values of the mentor’s perceptions of the effectiveness of mentor-novice teachers’ face-to-face meetings failed to align near or on the line of expected value; thereby appearing to corroborate the observation that the values were skewed (see Figure 4.50).

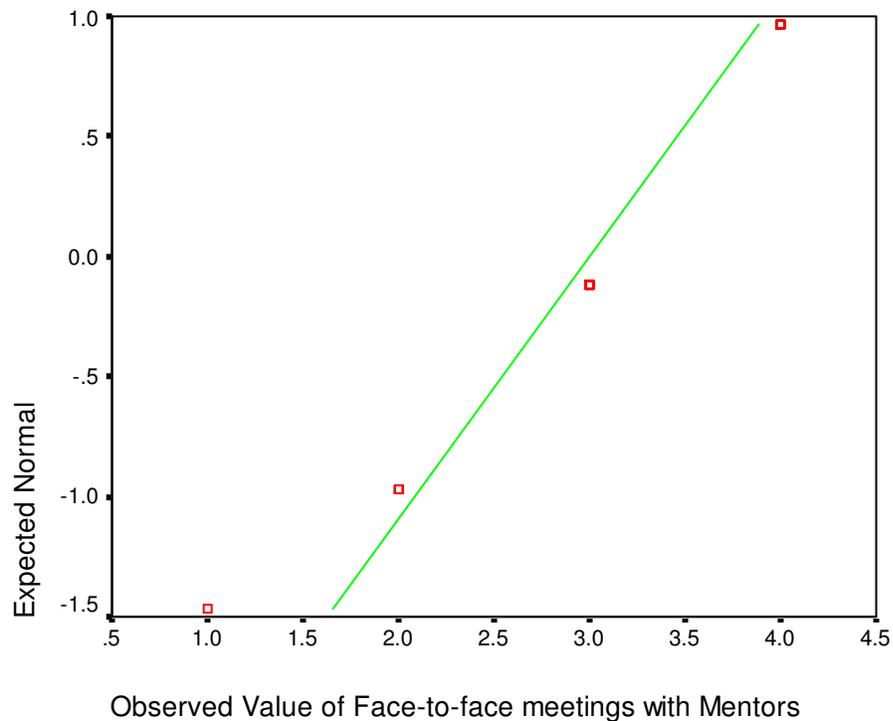


FIGURE 4.50. Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings between Mentors and Novice Teacher to Reflect

Face-to-Face Meetings among Novice Teachers for Reflection on Instructional Practices

The mean score of the mentor's perceptions of the effectiveness of face-to-face meetings among novice teachers for reflection on instructional practices was computed to be 3.50 with a standard deviation of 1.06. When compared to the trimmed mean score of 3.57, the values were found to be similar. This seemed to signify that the effect of the outlier scores were minimal.

To test the normality of the scores of mentor teachers' perceptions of face-to-face meetings among novice teachers for reflection, the Kolmogorov-Smirnov statistic was calculated. The significance was computed to be 0.00 which was less than 0.05. This appeared to illustrate that the distribution of scores was not normal. A skewness value of -0.71 appeared to demonstrate that the scores of the mentor's perceptions of the effectiveness scores were negatively skewed by high scores. The Kurtosis value of 0.47 seemed to illustrate that the curve peaked. An analysis of the histogram for the effectiveness of face-to-face meetings among novice teachers for reflection on instructional practices seems to show that the scores were not normally distributed (see Table 4.19 and Figure 4.51).

Additionally, the Normal Q-Q Plot was examined to assess the normality of the curve. The observed values for the effectiveness of novice teacher-novice teacher face-to-face meetings to reflect on instructional practices "were plotted against the expected value from the normal distribution" (Pallant, 2001/2004, p. 59). The observed values for the mentor's perceptions of the effectiveness of novice teacher-novice teacher face-to-face meetings to reflect on instructional practices failed to align near or on the line of expected value; thereby appearing to corroborate the observation that the values were skewed (see Figure 4.52).

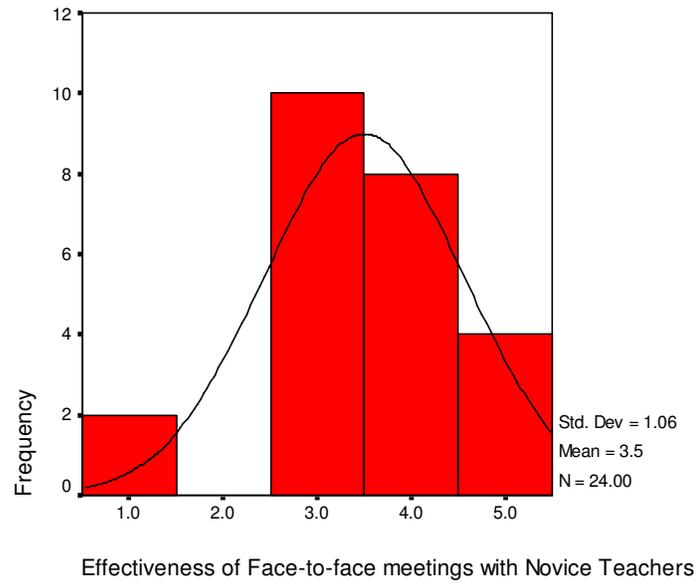


FIGURE 4.51. Histogram of Perceived Effectiveness of Face-to-Face Meetings among Novice Teachers

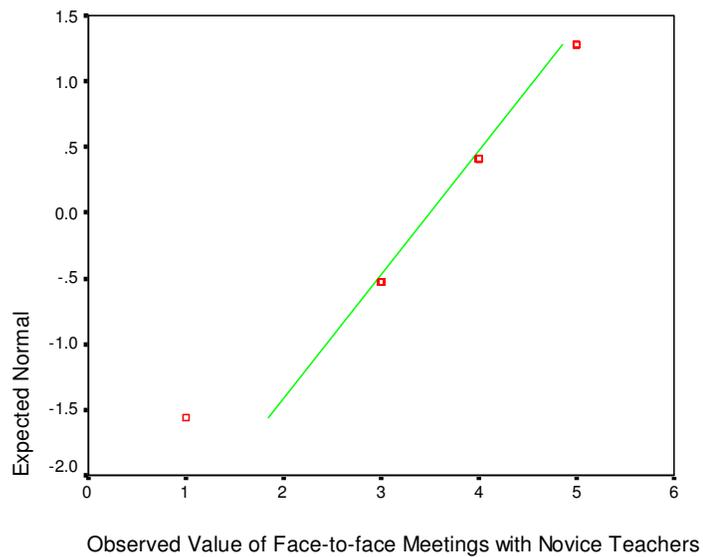


FIGURE 4.52. Normal Q-Q Plot of Perceived Effectiveness of Face-to-Face Meetings among Novice Teachers

Bulletin Boards

The mean score of the mentor's perceptions of the effectiveness of the bulletin boards for reflection constant for the two participants who evaluated the use. The results of the mentor responses to the ITUS appeared to indicate that bulletin boards were effective when employed to deliver emotional support and reflection. Chats and electronic mail were also similarly effective for these two components. Face-to-face meetings seemed to be only moderately effective for professional development and emotional support while they appeared to be effective when implementing formative observation or reflection components.

For the professional development component, video streaming was perceived as the most effective technological method utilized to deliver these opportunities. Additionally video tapes appeared to be perceived as effective by a larger number of mentors. The perception of websites, fact-to-face meetings, and video conferencing seemed to have been moderately effective (see Table 4.20).

TABLE 4.20. Mentors' Perceptions of Technological Venues for Each Component

Technological Venue	Professional Development		Emotional Support		Formative Observation		Reflection	
	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>
	mentors		mentors		mentors		mentors	
Audiotape					20	1.40		
Bulleting			30	4.40			2	4.00
Boards								
Chats			18	3.78			24	4.50
Electronic Mail			4	5.00			24	4.33
Face-to-face Meetings	10	2.80	18	2.89	10	4.00	24	3.50
Telephone			8	4.75				
Video Conference	14	2.71	10	4.00	8	2.25		
Videotapes	30	3.60			20	3.60		
Video Streaming	20	3.80						
Websites	30	2.87						

For personal communication to provide emotional support between mentors and novice teachers, electronic mail appeared to be perceived as most effective for four mentors. Telephones also appeared to be perceived as highly effective by eight mentors. However a larger number of mentors, 30, seemed to perceive bulletin boards as effective. Video conferencing and chats appeared to be perceived as effective by 10 mentors. Additionally, face-to-face meetings between novice teachers and mentors seemed to be perceived as moderately effective. The mentors reported that electronic mail or telephones were not used for communication among groups of novice teachers. Chats were perceived by the mentors as the most effective technological venue utilized for emotional support. However, bulletin boards, face-to-face meetings, and video conferencing also seemed to be perceived as effective.

To provide an opportunity for feedback on instructional practice, formative observations were conducted via face-to-face meetings, videotapes, video conferencing, and audiotapes with novice teachers. The responding mentors seemed to perceive face-to-face meeting as the most effective. However, videotapes appeared to be perceived as effective. Contrasting, video conferencing seemed to have been perceived as somewhat effective, while audiotapes seemed to have been perceived ineffective. Technological venues appeared to be perceived the least effective delivering formative observations when compared to professional development, emotional support or reflection.

To give novice teachers an opportunity to reflect, chats, electronic mail, bulletin boards, face-to-face meetings among a group of novice teachers and face-to-face meetings between novice teachers and mentors were incorporated in online teacher

induction programs. According to the results of the ITUS, the mentors appeared to perceive chats as the most effective method for reflection on instructional practices. In addition, electronic mail, bulletin boards, and face-to-face meetings among novice teachers seemed to have been perceived as effective. Face-to-face meetings between novice teachers, and mentor teachers appeared to have been perceived as moderately effective.

Research Question 5

Were there statistically significant differences in the mentors' perceptions of the effectiveness of the four components of online teacher induction programs related to school districts' size in which the novice teachers were assigned, the grade levels in which the novice teachers taught and the novice teachers' certification routes?

Based on the mentors' responses, demographic characteristics were determined. These characteristics were related to school districts' sizes in which the novice teachers were assigned, the grade level in which novice teachers taught and the novice teachers' certification route. The median and mean scores with standard deviations of the mentor's perceptions of the effectiveness of the components of online teacher induction programs were calculated according to school districts' sizes in which novice teachers, served by the mentors, were assigned. Additionally, the median score of the mentor's perceptions of the effectiveness of the components of online teacher induction programs were determined for programs that served secondary teachers and those that served both elementary and secondary teachers. Further, the median score of the mentor's perceptions of the effectiveness of the components of online teacher induction programs

was also identified by the certification route completed by novice teachers, either certified teachers were involved or alternatively certified and certified teachers were included by online teacher induction program.

The school districts involved were defined as small, medium, large, and a combination of all three sizes. Nine (or 25 percent) of the online teacher induction programs reported serving teachers assigned to small districts, such as rural and town school districts as well as private and charter schools. Novice teachers with positions in medium-sized school districts, such as city and suburban school districts were assisted by 10 programs (or 28 percent). Novice teacher working in large school districts were attended to by three (or 8 percent) of the online teacher induction programs. Programs with teachers in positions within school districts of all sizes were served by 14 programs (or 39 percent). Since the examined online teacher induction programs implemented different combinations of components, not all the mentors responded to every question found on the online survey.

To analyze the mentor's perceptions of the effectiveness of each component of online teacher induction programs, the median scores of each component were compared. The Kruskal-Wallis Test, a nonparametric alternative to the analysis of variance (ANOVA), was utilized to determine whether a statistically significant difference existed among the four groups. The school districts' size in which novice teachers taught served as the independent variable. If a statically significant difference was apparent, a Mann-Whitney Test was calculated for all possible group comparisons to further investigate.

To examine two groups, a Mann-Whitney Test compared the median scores of the mentor teachers' perceptions of the effectiveness of each component of an online teacher induction program using the grade level novice teachers taught as the independent variable. The mentor teachers were then grouped according to those grade levels taught by the novice teachers they served. The mentor teachers either assisted secondary level novice teachers or elementary and secondary level novice teachers.

Additionally, the Mann-Whitney Test was computed to compare the median scores of the mentor teachers' perceptions of the effectiveness of each component of an online teacher induction program using the certification route as the independent variable. The mentor teachers were grouped according to the certification route of the novice teachers they served. The mentor teachers either assisted certified novice teachers or alternatively certified and certified novice teachers.

Professional Development Component

Of the 51 respondents, 28 (or 55 percent) of the mentors indicated that they were involved in an online teacher induction program that included a professional development component. The statistical significances of the mentor's perceptions of the effectiveness of the professional development component were determined in relation to the school districts' sizes in which the novice teachers were assigned, the grade level in which the novice teachers taught and the novice teachers' certification route. The mean and median scores of each group were first computed (see Table 4.21).

TABLE 4.21. Mean Scores of Mentors' Perceptions of the Effectiveness of the Professional Development Component by Characteristic

Characteristic	N	Median	M	SD
School Districts Size				
Small	7	4.00	4.29	0.49
Medium	9	5.00	4.89	0.33
Large	2	5.00	5.00	0.00
All sizes	10	5.00	4.20	1.69
Grade Level				
Secondary	10	5.00	4.60	0.52
Elementary & Secondary	18	5.00	4.44	1.29
Certification Route				
Certified	14	5.00	4.71	0.47
Alternatively Certified & Certified	14	5.00	4.29	1.44

School Districts' Sizes

The school districts' in which the novice teachers were assigned were small, medium and large. However, some of the mentors served novice teachers placed in all three sizes of school districts. The means of the mentors' perceptions of the effectiveness of the professional development component ranged from 4.20 to 4.89 with

standard deviation ranging from 0.00 to 1.69. The medians were 5.00 except for the group serving small school districts. The median for small school districts was 4.00.

The mean of mentor's perceptions of the components' effectiveness with novice teachers placed in school districts of all sizes was the lowest at 4.20 with a standard deviation of 1.69. The mean of mentor's perceptions of the component's effectiveness with novice teachers in small school districts was 4.29 with a standard deviation of 0.49. Mentor's perceptions of the component's effectiveness serving teachers in medium-sized school districts, had a mean score of 4.89 and a standard deviation of 0.33. The mean of mentor's perceptions of the component's effectiveness assisting novice teachers in large school districts was calculated to be the highest at 5.00 with a standard deviation of 0.00 (see Table 4.21). Using the Kruskal-Wallis Test, a significance of $p = 0.08$ was found regarding school districts' sizes indicating no statistically significant difference at $p < 0.05$ (see Table 4.22).

TABLE 4.22. Significance of the Mentors' Perceptions of the Effectiveness of the Professional Development Component

Characteristic	Significance
School Districts' Size	0.08
Grade Level	0.59
Certification Route	0.87

Level Taught

The mentors reported that they served either novice teachers placed at the secondary level or both teachers assigned to either elementary or secondary level positions. Mentors, assisting novice teachers in secondary positions, had a mean score of 4.60 and a standard deviation of 0.52. The corresponding median of mentors' perceptions was 3.33.

The mean of the perceptions of mentors of the effectiveness of professional development components with both novice teachers in schools in elementary or secondary positions was lower at 4.44 with a standard deviation of 1.29. The median of these mentors' perceptions was 4.25 (see Table 4.21). Using the Mann-Whitney Test, a significance of 0.59 was found between the grade levels taught by novice teachers; thereby indicating no statistically significant difference at $p < 0.05$ (see Table 4.22).

Certification Route

The mentors served either novice teachers who were certified or those who were certified or earning alternative certification. The mean score of these mentors' perceptions of the component's effectiveness was higher at 4.71 with a standard deviation of 0.47. The median of the perception of mentors of the effectiveness of professional development components serving certified novice teachers was 5.00.

Mentors, assisting novice certified and alternatively certified novice teachers, had a mean score of 4.29 and a standard deviation of 1.44. The corresponding median was 5.00 (see Table 4.21). Using the Mann-Whitney Test, a significance of 0.87 was

calculated between the certification routes indicating no statistically significant difference at $p < 0.05$ (see Table 4.22).

Emotional Support Component

Of the 51 respondents, 36 (or 71 percent) of the mentors indicated that they were involved in an online teacher induction program that included an emotional support component. The statistical significance of the mentor's perceptions of the effectiveness of the emotional support component were determined in relation to school districts' sizes in which they served, the grade levels in which the novice teachers taught and the novice teachers' certification routes. The mean and median scores of each group were first computed (see Table 4.23).

School Districts' Sizes

The sizes of the school districts served by the mentors were identified as small, medium, and large. However, some mentors served novice teachers assigned to all three school district sizes. The means of the mentors' perceptions of the effectiveness of the emotional support component ranged from 3.00 to 5.00 with standard deviation ranging from 0.00 to 0.94 (see Table 4. 23). The mean of the mentor's perceptions of the effectiveness of emotional support in small school districts was 3.89 with a standard deviation of 0.93. The median of these mentors' perceptions was 5.00.

TABLE 4.23. Mean Scores of the Mentors' Perceptions of the Effectiveness of the Emotional Support Component by Characteristics

Characteristic	N	Median	M	SD
School Districts Size				
Small	9	5.00	3.89	0.93
Medium	10	3.00	3.00	0.94
Large	3	5.00	5.00	0.00
All sizes	14	5.00	4.39	0.91
Grade Level				
Secondary	14	4.00	3.86	1.17
Elementary & Secondary	22	4.00	3.91	1.02
Certification Route				
Certified	16	5.00	4.50	1.06
Alternatively Certified & Certified	20	3.00	3.40	1.05

Mentors serving in medium-sized school districts had the lowest mean score of 3.00 and a standard deviation of 0.94. The median was found to be the same as the mean at 3.00. The mean of mentor's perceptions of the effectiveness of emotional support for novice teachers in large school districts was consistently scored to be the highest level of 5.00; consequently, the standard deviation was 0.00 and the median was 5.00. The mean of the mentor's perceptions of the effectiveness of the emotional support component placed in school districts of all sizes was 4.39 with a standard deviation of 0.91 (see Table 4. 23). The median of the same group of mentors' perceptions was 5.00.

Using the Kruskal-Wallis Test, a significance of 0.01 was found among school district sizes (see Table 4.24). When comparing the school districts' sizes to which novice teachers were assigned, a significance of $p = 0.01$ appeared to indicate a statistically significant difference existed at $p < .05$.

TABLE 4.24. Significance of the Mentors' Perceptions of the Effectiveness of the Emotional Support Component

Characteristic	Significance
School Districts' Sizes	0.01
Grade Levels	0.96
Certification Routes	0.00

To further study the statistically significant difference found of the mentors' perceptions of the emotional support component among the sizes of school districts to

which novice teachers were assigned, a Mann-Whitney Test was computed for all possible comparisons. When the mentors' perceptions of the effectiveness of the emotional support component who served teachers placed in medium-sized school districts were compared to the perceptions of the effectiveness of emotional support of mentors serving novice teachers placed in large school districts, a statistically significant difference was found at $p = 0.01$ with $p < 0.05$. All other comparisons reported significances ranging from 0.06 to .3. These results appear to indicate no statistically significant difference at $p < 0.05$ (see Table 4.25).

TABLE 4.25. Significance of the Mentors' Perceptions of the Effectiveness of the Emotional Support Component of School Districts' Sizes Served by Mentors

	Medium	Large	All Sizes
Small	0.10	0.10	0.37
Medium		0.01	0.06
Large			0.30

Grade Levels

The mentors reported that they served novice teachers placed in secondary positions or novice teachers who were placed in either secondary or elementary positions. Mentors, serving teachers in secondary positions, had a mean score of 3.86 and a standard deviation of 1.17. The mean of the perceptions of mentors assisting novice teachers in elementary or secondary positions was higher at 3.91 with a standard deviation of 1.02. The median for both groups of mentors' perceptions was 4.00 (see Table 4. 23).

Consequently, the Mann-Whitney Test calculated a significance of 0.96 between the grade levels taught (see Table 4.24). When comparing mentors' perceptions of the effectiveness of the emotional support component in relation to the grade levels taught by the novice teachers, no statistically significant difference was found at $p = 0.96$ with $p < 05$.

Certification Route

The mentors stated that they assisted either novice teachers who were certified or novice teachers earning an alternative certification and those who were certified. The mean of mentors' perceptions of the effectiveness of emotional support components serving certified novice teachers was 4.50 with a standard deviation of 1.06. The median of these mentors' perceptions was 5.00.

Mentors, helping certified and alternatively certified novice teachers, mean score was lower at 3.40. The standard deviation was 1.05. The median of these mentors' perceptions was 3.00 (see Table 4. 23). Using the Mann-Whitney Test, a significance of

0.00 was calculated between the novice teachers' certification routes (see Table 4.22).

The comparison of the novice teachers' certification route resulted in $p = 0.00$ appearing to indicate a statistically significant difference at $0 < .05$ (see Table 4.24).

Reflection Component

Of the 51 respondents, 32 (or 63 percent) of the mentors indicated that they were involved in an online teacher induction program that included a reflection component. The sizes of the school districts in which the novice teachers were assigned and were served by the mentors were categorized as small, medium or large. However, mentors also reported that they served novice teachers who were placed in all three sizes of school districts. The mean and median scores of each group were first computed (see Table 4.26). The statistical significance of the mentor's perceptions of the effectiveness of the reflection component were determined in relation to the school districts' sizes in which novice teachers taught, the grade level at which the novice teachers served and the novice teachers' certification routes.

School Districts' Sizes

The means of the mentor's perceptions of the effectiveness of the reflection component ranged from 2.67 to 3.78 with standard deviation ranging from 0.00 to 1.11 (see Table 4.25). Mentors of novice teachers working in small school districts had a mean perception score of 3.67 and a standard deviation of 1.11. The median of this group of mentors was 4.00.

TABLE 4.26. Mean Scores of Mentors' Perceptions of the Effectiveness of the Reflection Component by Characteristics

Characteristic	N	Median	M	SD
School Districts' Sizes				
Small	11	4.00	3.67	1.11
Medium	6	3.33	3.78	0.69
Large	2	2.67	2.67	0.00
All sizes	5	3.33	3.40	0.95
Grade Levels				
Secondary	12	3.33	3.19	0.79
Elementary & Secondary	12	4.25	3.92	0.97
Certification Routes				
Certified	10	3.33	3.90	1.07
Alternatively Certified & Certified	14	4.51	3.31	0.79

The mean of mentors' perceptions of the component's effectiveness with novice teachers in medium-sized school districts was calculated to be the highest at 3.78 with a standard deviation of 0.69. The median score was 3.33 for this same group of mentors. The mean of the mentors' perceptions of the component's effectiveness with novice teachers placed in large school districts was the lowest at 2.67 and with a standard deviation of 0.00. The low median was 2.67. The mean of the perception of mentors

with novice teachers in all sized school districts was 3.40 with a standard deviation of 0.95. The median for the mentors' perceptions of the last group was 3.33 (see Table 4.26). Using the Kruskal-Wallis Test, a significance of $p = 0.41$ was found comparing school districts' sizes; thereby indicating no statistically significant difference at $p < 0.05$ (see Table 4.27).

TABLE 4.27. Significance of the Mentors' Perceptions of the Effectiveness of the Reflection Component

Characteristic	Significance
School Districts Size	0.41
Grade Level	0.09
Certification Route	0.17

Grade Levels

The mentors served either novice teachers assigned secondary positions or novice teachers placed in elementary and secondary positions. Mentors serving novice teachers in secondary positions had a mean score of 3.19 and a standard deviation of 0.79. The median was 3.33. The mean of the perceptions of mentors with novice teachers in elementary or secondary positions was higher at 3.92 with a standard deviation of 0.97. The median for these mentors was 4.25 (see Table 4.26). Using the

Mann-Whitney Test, a significance of 0.09 was found between the grade levels taught; thereby, indicating no statistically significant difference at $p < 0.05$ (see Table 4.27).

Certification Route

The mentors served either certified novice teachers or novice teachers who were certified and those earning alternative certification. The mean of the mentors' perceptions of the effectiveness of the reflection component with certified novice teachers was higher at 3.90 with a standard deviation of 1.07. The median for these mentors' perceptions of the component's effectiveness was 3.90. Mentors, serving certified and alternatively certified novice teachers, had a mean score of 3.31 and a standard deviation of 0.79. The median of this group of mentors' perceptions was 3.31 (see Table 4.26). Using the Mann-Whitney Test, a significance of 0.17 was found between the certification routes; thereby indicating no statistically significant difference at $p < 0.05$ (see Table 4.27).

Formative Observation Component

Of the 51 respondents, 30 (or 59 percent) of the mentors indicated that they were involved in an online teacher induction program that included a formative observation component. The school districts' sizes to which novice teachers were assigned and served by the mentors were categorized as small, medium, and large. Some mentors indicated that they served novice teachers placed in all three sizes of school districts. The statistical significance of the mentor's perceptions of the effectiveness of the formative observation component was determined in relation to the school districts' sizes in which novice teachers were assigned, the grade levels taught by novice teachers and

the certification routes of the participating novice teachers. The mean and median scores of each group were first computed (see Table 4.28).

TABLE 4.28. Mean Scores of Mentors' Perceptions of the Effectiveness of the Formative Observation Component by Characteristics

Characteristic	N	Median	M	SD
School Districts' Sizes				
Small	9	2.00	2.33	1.58
Medium	9	5.00	3.67	2.00
Large	4	3.50	3.50	1.73
All sizes	8	1.00	1.25	0.46
Grade Levels				
Secondary	12	2.00	2.67	1.78
Elementary & Secondary	18	2.00	2.56	1.82
Certification Routes				
Certified	16	3.50	3.13	1.96
Alternatively Certified & Certified	14	2.00	2.00	1.36

School Districts' Sizes

The means of the mentor's perceptions of the effectiveness of the formative observation component ranged from 4.20 to 4.89 with standard deviation ranging from 1.25 to 3.67 (see Table 4.28). The mean of the mentors' perceptions of the effectiveness of this component serving novice teachers in small school districts was 2.33 with a standard deviation of 1.58. The median of these mentors' perceptions was 2.00. The mean of mentors of novice teachers in medium-sized school districts was the highest and calculated at 3.67 with a standard deviation of 2.00. These mentors' perceptions had a median of 5.00. Mentors, assisting teachers in large school districts, had a mean score of 3.50 and a standard deviation of 1.73. The median of large school districts' mentors' perceptions was 3.50. The mean of the mentors' perceptions of the effectiveness of formative observation mentoring novice teachers placed in all school districts' sizes was the lowest at 1.25 with a standard deviation of 0.46. The median of this group of mentors' perceptions was 1.00 (see Table 4.28). Using the Kruskal-Wallis Test, a significance of $p = 0.04$ was found comparing school district sizes; thereby, indicating a statistically significant difference at $p < 0.05$ (see Table 4.29).

TABLE 4.29. Significance of Mentors' Perceptions of the Effectiveness of the
Formative Observation Component

Characteristic	Significance
School Districts' Sizes	0.04
Grade Levels	0.76
Certification Routes	0.26

To further study the statistically significant difference found among the sizes of the school districts in which the novice teachers taught, a Mann-Whitney Test was computed for all the possible comparisons. When the mentors' perceptions of the effectiveness of the formative observation component for novice teachers teaching in large school districts were compared to those serving novice teachers employed by school districts of all sizes, a statistically significant difference was found at $p < 0.05$ with $p = 0.02$. All other comparisons resulted in no statistically significant difference at $p < 0.05$ (see Table 4.30).

TABLE 4.30. Significance of Mentors' Perceptions of the Effectiveness of the Formative Observation Component of School Districts' Sizes

	Medium	Large	All Sizes
Small	0.30	0.26	0.11
Medium		1.00	.05
Large			.02

Grade Level

The mentors served either novice teachers placed in secondary positions or novice teachers who were placed in either secondary or elementary positions. The mean of the mentors' perceptions of the effectiveness of formative observation of novice teachers in elementary or secondary positions was lower at 2.56 with a standard deviation of 1.82. The median of these mentors' perceptions was 2.00. Mentors, assisting teachers in secondary positions, had a mean score of 2.67 and a standard deviation of 1.78 (see Table 4.28). The median was the same, 2.00, for this groups' mentors' perceptions. Using the Mann-Whitney Test, a significance of 0.76 was found between the levels taught; thereby indicating no statistically significant difference at $p < 0.05$ (see Table 4.29).

Certification Route

The mentors served either novice teachers who were certified or both certified novice teachers who were certified and those alternatively certified. The mean of the

perceptions of mentors of the effectiveness of the formative observation component assisting certified novice teachers was higher at 3.13 with a standard deviation of 1.96. The median for these mentors' perceptions was 3.50. Mentors' perceptions, serving both certified and alternatively certified novice teachers, had a mean score of 2.00 and a standard deviation of 1.36. The median for this group of mentors' perceptions was 2.00 (see Table 4.28). Using the Mann-Whitney Test, a significance of 0.26 was found between the certification routes; thereby indicating no statistically significant difference at $p < 0.05$ (see Table 4.29).

According to the results of the ITUS, the mentors' perceptions of the effectiveness of the professional development component appeared to be effective to very effective regardless of the school districts' size in which the novice teachers were assigned, the grade level in which the novice teachers taught and the novice teachers' certification route. With comparable mean and median scores, no statistically significant difference was found (see Table 4.31).

TABLE 4.31. Summary of Mentors' Perceptions of Components

Characteristic	PD	ES	FO	Ref
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
<hr/>				
School Districts' Sizes				
Small	4.29	3.89	3.67	2.33
Medium	4.89	3.00	3.78	3.67
Large	5.00	5.00	2.67	3.50
All Sizes	4.20	4.39	3.40	1.25
Grade Level				
Secondary	4.60	3.86	3.19	2.67
Elementary & Secondary	4.44	3.91	3.92	2.56
Certification Route				
Certified	4.71	4.50	3.90	3.13
Certified & Alternatively Certified	4.29	3.40	3.31	2.00

The mentors' perceptions of the effectiveness of the emotional support component for all groups appeared to range from moderately effective to very effective. A statistically significant difference was found between the mentors' perceptions of the component's effectiveness serving medium sized school districts and large school

districts. Mentors of novice teachers employed in large school districts appeared to perceive the emotional support component as the most effective with a mean of 5.00. Mentors assisting teachers in medium-sized school districts appeared to perceive this component as moderately effective with a mean of 3.00.

Additionally, a statistically significant difference was found when comparing the mentors' perceptions of the effectiveness of emotional support with certified novice teachers and those serving certified and alternatively certified. The mentors' perceptions of the component's effectiveness who served certified novice teachers appeared to be moderately effective with a mean of 3.40. The perceptions of mentors assisting certified and alternatively certified novice teachers seemed to be very effective with a mean of 4.50.

The mentors' perception of the effectiveness of the reflection component was similar for all groups; thus, resulting in no statistically significant difference with regard to school districts' sizes, grade levels or certification routes. The mentors appeared to perceive this component as moderately effective to effective. Large school district mentors' perceptions were the highest with a mean of 5.00 in comparison to the mentors' perceptions of the component's effectiveness in small, medium and a combination of all sizes of school districts. Mentors serving both secondary and elementary novice teachers appeared to perceive the reflection components as effective with a higher mean of 3.92. In comparison, mentors assisting secondary teachers seemed to perceive this component as moderately effective with a mean of 3.19.

The mentor's perceptions of the effectiveness of the formative observation component appeared to range from ineffective to effective. A statistically significant difference in the mentors' perceptions of the component's effectiveness serving large school districts and the perceptions of mentors serving novice teachers assigned to all school districts sizes was found. The mentors in large school districts appeared to perceive formative observation components as effective with a mean of 3.67, while mentors with novice teachers in all school districts' sizes appeared to perceive formative observation components as ineffective with a mean of 1.25. The remaining school districts' sizes comparisons appeared to indicate no statistically significant differences. A mean of 3.50 seemed to indicate that mentors assigned to novice teachers teaching in large school districts perceived formative observation components as moderately effective. The perceptions of small school districts' mentors appeared to indicate that they viewed the formative observation components as somewhat effective with a mean of 2.33. In relation to grade level, all mentors perceived the formative observation component as moderately effective. Further, mentors of certified teachers seemed to perceive this component as moderately effective with a mean of 3.13. However, mentors of certified and alternatively certified teachers appeared to perceived the effectiveness of this component as somewhat effective with a mean of 2.00.

Summary

In this chapter, the results of a descriptive study of online teacher induction programs designed to support the professional development of novice teachers were reported (Gall et al., 1996). The data was collected utilizing an online survey, the ITUS.

The emotional support component was identified as the component included in online teacher induction programs most often while professional development was indicated as the most effective component. A different technological venue was identified as the most common or most effective for each component. For professional development, websites were employed in the largest percent of the programs while video streaming was perceived as most effective. In regards to the emotional support component, electronic mail was utilized most often while a electronic mail and chats appeared to be perceived as the ;most effective technological venue. The formative observation component implemented the venue that was perceived as the most effective, face-to-face meetings. In the reflection component, electronic mail was utilized in the largest percent of the online teacher induction programs; however, chats were perceived as the most effective technological venue. The professional development component seemed to consistently be perceived effective regardless of school districts' sizes, grade levels or certification routes. Additionally, formative observations appeared to be perceived as moderately effective.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND SUMMARY

During the past 23 years, educators have been challenged by the issue of teacher attrition (Ingersoll, 2001; Odell & Ferraro, 1992; Schlecty & Vance 1983). School enrollment continues to grow, while a large percentage of teachers leave the profession (Darling-Hammond, 2000; Gold, 1996; Henke et al., 2000; Schlecty & Vance, 1983). Additionally, the teachers of the Boomer generation are nearing retirement (Darling-Hammond, 1998; Strong, 2004). The challenges faced by novice teachers beginning their career in the classroom are overwhelming and have caused them to incorporate survival strategies (Darling-Hammond, 2000; Gold, 1996).

Research has shown that teacher induction programs in which novice teachers met face-to-face with an assigned mentor addressed issues challenging the novice teacher (Darling-Hammond, 1998; RNT, 2000). However, due to scheduling conflicts (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998), geographic limitations (DeWert et al., 2003; Single & Muller, 2001; Yearwood & Nichols, 1998), and cost constraints (DeWert et al., 2003; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998), face-to-face programs have been unavailable to many novice teachers (Collins, 1999; Henson & Shapiro, 1999). With the increasing availability of various technological venues, online teacher induction programs have become a viable solution to provide novice teachers with necessary support and assistance (DeWert et al., 2003; Eisenman & Thornton, 1999; Single & Muller, 2001).

Induction program components have been made available via online communication or through a combination of online and face-to-face communications with peers and mentors (Nicol et al., 2003). Discussions, sharing ideas and reflection on aspects of teaching have been made possible through bulletin boards, downloading work samples and programs, and contributing to or leading online activities (Collins, 1991). Online teacher induction programs have shown to effectively support novice teachers (DeWert et al., 2003). However, research indicating the components incorporated and technological venues utilized in online induction programs has been omitted. In addition, the effectiveness of implemented components and technology employed for novice teacher support through online teacher induction programs has been limited. The programs utilizing available technology appears to diminish the scheduling conflicts, geographic limitation, and cost constraints; thereby offering the novice teacher more convenient and flexible assistance from an experienced mentor teacher and peers (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998).

Student enrollment has been projected to reach 54.3 million students by 2007. This number includes 4.3 million more students than the 1995 enrollment (SBEC, 1998). Further, by 2012, an estimated two million more teachers will be needed (NCTAF, 2003). In addition, the number of students representing diverse populations has also continued to increase; thus, contributing to the growing need for teachers trained to address diverse populations (Henke et al., 2000).

NCES (1998) reported that 9.3 percent of public school teachers left within their first year of teaching, while over 20 percent of the teachers exit within three years. An additional 30 percent abandon the teaching profession within the first five years. (Delgado, 1999; Darling-Hammond, 1999). A recent review of the research indicated that the number of teachers leaving the educational profession in 1999-2000 exceeded those entering by 23 percent (NCTAF, 2003). Ingersoll (2001) determined that the greatest shortages of novice teachers were found in rural as well as urban districts (Shields et al., 2003).

The challenges faced by novice teachers appear to relate to cultural mismatch between teachers and students they teach and isolation. These challenges have led novice teachers to abandon the classroom within a few years of beginning their teaching career (Norton, 1999). Beginning or novice teachers begin their careers feeling overwhelmed, disillusioned, and lacking the confidence needed to cope with classroom adversities (Gold, 1996).

To increase the retention of novice teachers, teacher induction or mentoring programs have been developed incorporating the components of emotional support, professional development, formative observation, and reflection components. Programs that included these components have been proven to effectively increase teacher retention and quality (Darling-Hammond, 1998; Darling-Hammond & Sykes, 2003; RNT, 2000). Through involvement in a teacher induction program, Dianda (1997) found that novice teachers experienced higher job satisfaction in addition to higher retention rates.

The purpose of this descriptive study was to examine the components utilized in online teacher induction programs designed to assist novice teachers with emotional support and professional teacher development. The technological venues currently utilized to deliver those components were also examined. Further, the study analyzed the mentors' perceptions of the effectiveness of each components incorporated and technological venues utilized within the surveyed teacher induction programs.

An online questionnaire, ITUS, was used to gather the data from mentors participating in online teacher induction programs (Gall et al., 1996; Isaac & Michael, 1997). These teacher induction programs used technology to provide emotional support, professional development, formative observation, reflection or a combination of those components. The mentors were identified via online teacher induction or mentoring programs and websites or through programs listed in published journal articles, presented at conferences and referred by personal contacts.

Research Question 1

To what extent were emotional support, professional development, formative observation, and reflection components incorporated by online teacher induction programs?

Mentors, voluntarily responding to the ITUS, reported that the emotional support, professional development, formative observation, and reflections components have been implemented in online teacher induction programs. The emotional support component was provided most often. The four programs (or 11 percent) that included a single component provided novice teachers emotional support. The professional development

and formative observation components were provided in over half of the online teacher induction programs. The least common component was reflection, available in 50 percent of the online teacher induction programs. Based on the technological venues currently available, it was unexpected that 50 percent of the online teacher induction program included in formative observation component even though it was perceived as moderately effective.

Novice teachers needed personal and emotional support as they embark on their first year of teaching, as researchers describe this component as being essential (Arends & Regazio-DiGilio, 2000; Feiman-Nemser et al., 1999; Giebelhaus & Bendixen-Noe, 2000; Huling-Austin, 1989). Through group discussions, novice teachers shared concerns and offered advice to peers (Babinski & Rogers, 1999). As new ideas and skills were suggested, they were applied in the classroom and then evaluated as to their effectiveness (Joyce & Showers, 2002; Matus, 1999; Stanulis et al., 2002). Vygotsky's (1978) socio-cultural theory defines this activity as social interaction. The individual learned from others that have experienced similar issues participating in the groups (Vygotsky, 1978). Further, this component formalized collegial support and decreased isolation (Guyton & Hidalgo, 1995).

Emotional support alone failed to meet the goals of improved teacher quality and teacher retention (Feiman-Nemser et al, 1999; Freedman, 1992). Teacher induction programs addressed the need for professional development specifically designed to support novice teachers providing a foundation to develop instructional strategies and skills (Fideler & Haselkorn, 1999; Johnston, 1985; Lemke, 1994). Novice teachers,

assigned to urban schools during their first year of teaching, were provided fewer opportunities to participate in high quality professional development (Foster, 2004). Professional development structured to provide purposeful assistance in instructional practices for novice teachers (Cooper & Morey, 1989) enabled them to develop as professional teachers (Clark, 2001). Jorissen (2002) stated that collegial relationships developed as a result of professional integration of discourse which is ground in content. Therefore, novice teachers appeared to develop a deeper knowledge of content and curriculum as they refined their instructional repertoire to include effective classroom strategies for students representing diverse populations (Feiman-Nemser, 2001).

The formative observation component seemed to be utilized by 56 percent of the online teacher induction programs. Angelle (2002) stressed that formative observations provided opportunities for constructive feedback addressing instructional practices. This enabled novice teachers to gradually improve. Periodic formative observations allowed the observer to collect data and then encouraged the novice teacher by emphasizing their strengths, while also providing suggestions for enhancing their instructional skills (Degenais, 1996; Lemke, 1994). Harrison (2001) found that novice teachers, who had opportunities to participate in a teacher induction program including formative observations, shared a more positive induction experience than the novice teachers, who participated in teacher induction programs without a formative observation component. Formative observations and conferences provided the opportunities for novice teachers to apply practical knowledge to their classroom teaching with guidance from a more experienced teacher (Feiman-Nemser, 2001).

Reflection appeared to be implemented in 50 percent of the online teacher induction programs represented. Recently, additional emphasis has been placed on reflection as an aspect of professional development (Cady, 1998). After conducting an observation, McCann et al. (2005) reported that mentors engaged novice teachers in professional conversations encouraging them to reflect on the implemented instructional strategies.

A combination of components appeared to be incorporated in 32 of the online teacher induction programs surveyed. Induction activities range from a single orientation meeting at the beginning of the year to multiple activities designed specifically for novice teachers (Smith & Ingersoll, 2004). These activities were designed to enhance instructional and management skills, locate instructional resources and learn communication techniques (Odell & Ferraro, 1992). Effective teacher induction programs combined emotional support, professional development as well as formative observation components (Feiman Nemser, 2001). Teacher induction programs with multiple components increased teacher retention more than the implementation of any one component (Smith & Ingersoll, 2004).

Research Question 2

What were the mentors' perceptions of the effectiveness of the four components of online teacher induction programs?

Professional development appeared to be perceived as the most effective of the four components of online teacher induction programs based on the results of the responding mentors'. The mean score fell between effective and very effective on the

five-point Likert scale. Mentors appeared to perceive the emotional support component as effective. Formative observation and reflection components seemed to be perceived as moderately effective.

Professional development specifically designed for novice teachers as perceived by mentors of online teacher induction programs emphasized enhancing novice teachers' instructional skills (Cooper & Morey, 1989; Clark, 2001; McCann et al., 2005). Therefore, an important element of a teacher induction program appeared to be professional development. Further, novice teachers involved in professional development were more likely to stay for the professional stimulation (Yee, 1990).

Researchers reported that emotional support, one component to be included in a teacher induction program, provided novice teachers opportunities to discuss and share ideas (Arends & Regazio-DiGilio, 2000; Huling-Austin, 1992). In addition to professional development, novice teachers required personal and emotional support as they embarked on their first year of teaching (Giebelhaus & Bendixen-Noe, 2000; Huling-Austin, 1989; Odell & Huling, 2000). Ongoing opportunities to share uncertainties and requesting assistance regarding issues faced in the classroom were essential (Feiman-Nemser, 2001; Gold, 1996). Novice teachers analyzed ideas, values, and practices through conversations with peers and mentors (Feiman-Nemser, 2001; Gold, 1996). Further, they jointly constructed knowledge in learning communities (Lave & Wenger, 1991).

As perceived by mentors, reflection was the third most effective component of online teacher induction programs. Novice teachers developed professional insights to

strengthen effective instructional strategies through sharing ideas and expressing their thoughts in journals (Cady, 1998). The ability of novice teachers to examine strategies incorporated in the classroom evolved over time (Sparks-Langer & Colton, 1991). Novice teachers needed opportunities to critically examine their new role as a teacher before they implement new strategies to teach students that are different from themselves (Feiman-Nemser, 2001). Providing a component of reflection within an online teacher induction program enabled novice teachers to become self-confident, discuss challenges and learn additional research-based strategies to implement within their classroom (Furlong, 2000; Tomlinson, 1995; Zeichner, 1992).

In addition to reflection, formative observation was perceived by researchers as an effective component of a teacher induction program (Dagenais, 1996; Lemke, 1994). However, the formative observation component in this study was perceived by mentors as the least effective component. To support the professional growth of novice teachers, after collecting data from a formative observation, McCann et al. (2005) found that mentors encouraged novice teachers to reflect on practice (Schon, 1987). This occurred by engaging them in professional conversations, while guiding them to reflect on the implemented instructional strategies of the observation. Fideler and Haselkorn (1999) found that novice teachers involved in teacher induction programs were encouraged to observe experienced teachers in the same building, in a different school or as a demonstration.

Research Question 3

Which technological venues were utilized to deliver the four components of online teacher induction programs?

According to participating mentors', the technological venues available to deliver the components of an online teacher induction program included video conferencing, telephone and web-based venues such as electronic mail, bulletin boards, and chats. Additionally, face-to-face meetings were utilized by different programs with various components. Online teacher induction programs utilizing available technology appeared to overcome challenges of scheduling conflicts, geographic limitations, and cost constraints (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). These available technologies provided convenient methods of communication for novice teachers and mentors (DeWert et al., 2003; Yearwood & Nichols, 1998).

Professional Development Component

After examination of the responses of mentor teachers to the ITUS, the findings appear to indicate that websites, videotaped lessons, video streaming, video conferencing and face-to-face meetings were utilized to deliver professional development. The largest percent of the online teacher induction programs with a professional development component (or 71 percent) utilized websites to deliver instruction, while videotaped lessons were incorporated by 13 (or 62 percent) of the programs. Video streaming was also employed to deliver professional development by 10 (or 48 percent) programs, while topics were also addressed through video conferencing by 7 (or 33.33 percent) of

the programs. Additionally, face-to-face meetings were incorporated by 5 (or 23.81 percent) of the programs that delivered instruction on professional development topics.

Emotional Support Component

Electronic mail, telephone, bulletin boards, face-to-face meetings, video conferencing, and chats were noted as available technological venues used to support novice teachers within emotional support components requiring communication between mentors and novice teachers. Electronic mail and telephone was utilized by the largest percent of online teacher induction programs. Bulletin boards were also used in 48 percent of the teacher induction programs. Additionally, the remaining venues were utilized infrequently. Face-to-face meetings provided emotional support in a 26 percent of the teacher induction programs examined. Only 22 percent of the teacher induction programs employed video conferencing. Two (or 9 percent) programs were reported to utilize chats between mentors and novice teachers.

Twenty-three (or 64 percent) teacher induction programs required some form and frequency of communication among groups of novice teachers. Fewer mentors reported a mode of communication among groups of novice teachers. The most common form of communication among novice teachers appeared to be face-to-face meetings in 17 percent of the teacher induction programs. Bulletin boards and video conferencing were used in three (or 13 percent) programs. Only two programs (or 9 percent) appeared to utilize telephone communication.

Reflection Component

Mentors appeared to utilize face-to-face meetings with their mentees as a means to encourage novice teachers to reflect most often. Additionally, 11 (or 65 percent) induction programs incorporated face-to-face meetings among groups of novice teachers for reflection. Electronic mail was employed for novice teachers to share reflections with their mentors in 13 (or 76 percent) programs that incorporated this form of communication. Reflections were posted via bulletin boards by 10 (or 59 percent) of the induction programs. Only four (or 24 percent) programs asked novice teachers to reflect in chat sessions.

Formative Observation Component

Formative observations were completed via face-to-face meetings, videotapes, and video conferencing. Face-to-face meetings in 11 (or 55 percent) of the programs appeared to have been included as the most common mode of communication to conduct formative observations. Twenty-five percent of the programs utilized videotapes for formative observations, while five percent used video conferencing.

In addition to being observed, novice teachers were also required to observe other teachers including their mentor, other experienced teachers and their peers in the 18 (or 100 percent) of the teacher induction programs that included a formative observation component. Master or experienced teachers were observed in 56 percent of the programs. Novice teachers also observed their mentor teachers in eight (or 44 percent) of the 18 programs and peers in four (or 22 percent) programs.

Novice teachers were asked to formally critique their own instruction in 16 (or 89 percent) of the 18 programs that included a formative observation component. Other forms of self-critique, not addressed by ITUS, appeared to have been incorporated in 13 (or 72 percent) of these teacher induction programs. Videotapes were employed by 33 percent of the represented teacher induction programs to conduct self-critiques, while one (or 6 percent) program utilized audio and videotapes of classroom instruction.

Convenient, accessible, easy to use, and cost effective technology appeared to be the most commonly used mode of communication for formative observations.

Technology continues to transform the way we live and learn (Cetron & Cetron, 2004) by allowing people to collaborate regardless of scheduling conflicts, geographic limitations or cost constraints (Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). While in the beginning stages of online technology implemented by teacher induction program, this type of communication has previously been used to provide pre-service and in-service professional development opportunities.

Available technology enabled novice teachers to contact peers and mentors via synchronous, or real time communication, and asynchronous, communication allowing time for responses (Molebash, 1999). Through online communication, novice teachers created communities of inquiry to investigate and solve problems (Perkins-Gough et al., 2004). Technology provided a means for schools and teachers to become more knowledgeable about instructional strategies through access to resources and instructional information (ASCD, 1996; Cetron & Cetron, 2004). As novice teachers sought solutions, online teacher induction offered quick access to available external

networks (Psaromiligkos & Retalis, 2003). Teacher induction programs provide resources, such as textbooks, articles, and websites and assist novice teachers as they grow personally and professionally (Ayers and Griffin, 2005).

Electronic mail allowed previously isolated participants to connect with peers and mentors; thus, reducing isolation (Cifuentes & Shih, 1999). Providing support for Internet use allowed more one-to-one time between mentors and novice teachers or among novice teachers (Cifuentes, 1996). Through the convenience of asynchronous communication, scheduling conflicts diminished with the use of technology (DeWert et al., 2003; Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). Technology has overcome the limitations of geographic locations (DeWert et al., 2003; Single & Muller, 2001; Yearwood & Nichols, 1998). The ability to communicate conveniently from the novice teachers' classrooms, offices or homes also limits the cost of providing a face-to-face teacher induction program (DeWert et al., 2003; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998).

Research Question 4

What were mentors' perceptions of the effectiveness of the technological venues utilized to deliver the four components of online teacher induction programs?

Chat was the only venue that appeared to be perceived as the most effective by the participating mentors for two components of online teacher induction programs. Mentors of programs that required communication between novice teachers reported that chats were very effective while mentors of programs implementing the reflection component appeared to indicate that chats were effective. For emotional support,

mentors seemed to perceive electronic mail as very effective. Face-to-face meetings appeared to be perceived as effective by mentors for formative observation.

Additionally, video streaming seemed to be perceived as effective for professional development.

Professional Development Component

Internet websites, videotapes, video streaming, video conferencing, and face-to-face meetings were employed to deliver the professional development component of online teacher induction programs. Video streaming appeared to be perceived as the most effective with a mean score of 3.80 and a standard deviation of 1.28 with 20 participants responding. Videotaping also seemed to be perceived as effective by 30 participants with a mean score of 3.60 and a standard deviation of 1.65. The mean score of Internet website use was 2.87 with a standard deviation of 1.53. Face-to-face meetings were evaluated by 10 participants, who appeared to perceive face-to-face meetings as moderately effective with a mean score of 2.80 and a standard deviation of 0.49. Fourteen participants seemed to perceive video conferencing as moderately effective with a mean score of 2.71 and a standard deviation of 0.32.

Emotional Support Component

The emotional support component of online teacher induction programs utilized a combination of electronic mail, telephones, bulletin boards, chats, face-to-face meetings and video conferencing as the mode of delivery. Electronic mail was perceived as the most effective with a constant response of 5.00. However, only four participants responded to the effectiveness of electronic mail. Using the telephone was

also perceived as effective by eight participants with a mean score of 4.75 and standard deviation of 0.46. Thirty participants evaluated the effectiveness of bulletin boards. The mean score of bulletin board use was 4.40 with a standard deviation of 0.81. Bulletin boards were evaluated by the largest number of mentors while still appearing to be perceived as effective. Mentors were able to communicate with groups of novice teachers through asynchronous communication on bulletin boards. While communication among a group of novice teachers may not have been required, novice teachers could have benefited from reading the threads of communication that occurred on a bulletin board.

In addition, video conferencing was also perceived as effective by 10 participants with a mean score of 4.00 and a standard deviation of 1.63. Chats were viewed as effective by 18 participants with a mean score of 3.78 and a standard deviation of 1.06. The mode that was perceived as the least effective means for emotional support by 18 participants was face-to-face meetings with a mean score of 2.89 and a standard deviation of 1.13.

Formative Observation Component

Mentors' perceptions of examined procedures utilized to complete formative observations included available technological venues. While other components have mainly relied on technological modes of communication, the mentors appeared to perceive face-to-face meetings as the most effective. The mean score was 4.00 and a standard deviation of 1.15 with 10 participants responding. The use of videotapes was also evaluated by 20 participants with a mean score of 3.60 and standard deviation of

0.34. Eight participants perceived video conferencing with a mean score of 2.25 with a standard deviation of 0.41. Audiotapes were evaluated by 20 participants with a mean score of 1.40 and a standard deviation of 0.50.

Reflection Component

Online teacher induction programs utilized chats, electronic mail, bulletin boards, face-to-face meetings with other novice teachers and face-to-face meetings with mentors. Mentors seem to perceive chats as the most effective venue for reflection. The mean score was 4.50 with a standard deviation of 0.10 by 24 participants. Electronic mail appears to be perceived as effective with a mean score of 4.33 and standard deviation of 0.16 by 24 participants. Two participants consistently reported their perceptions of the effectiveness of bulletin board use with a score of 4.00. The mean score of face-to-face meetings with other novice teachers was 3.50 with a standard deviation of 0.22. According to 20 participants, the least effective venue appears to be face-to-face meetings with mentors. The mean score in this venue was 3.00 with a standard deviation of 0.21.

Technology has transformed the way people live and learn (Cetron & Cetron, 2004). As a result, professional development has begun to utilize the Internet to master projected goals of education including novice teachers' support (Cetron & Cetron, 2004; DeCoker, 2000). Technological venues such as electronic mail, bulletin boards, websites, chats, videotapes, and video conferencing allow people to collaborate regardless of scheduling conflicts, geographic limitations or cost constraints (Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). While

in the beginning stages of utilizing technology to support novice teachers, this type of communication appears to offer access to teacher induction programs for rural and urban teachers.

Research Question 5

Were there statistically significant differences in the mentors' perceptions of the effectiveness of the four components of online teacher induction programs related to school districts' size in which the novice teachers were assigned, the grade levels in which the novice teachers taught and the novice teachers' certification routes?

After comparing participating mentors' perceptions, statistically significant differences failed to be found in the scores regarding the professional development and reflection components based on school districts' sizes, grade level and certification route. When the scores for the emotional support and formative observation components were examined, statistically significant differences were found. Further analysis indicated that the statistically significant differences were found when the emotional support component scores of medium-sized and large school districts were compared. The emotional support component scores of mentors with certified novice teachers were also statistically significantly different than the scores of the mentors with certified and alternatively certified novice teachers. In addition, the scores of the formative observation component of the mentors in large school districts were statistically significantly different than mentors in all school district sizes.

Professional Development Component

Of the 51 respondents, 28 (or 55 percent) of the mentors indicated that they were involved in an online teacher induction program that included a professional development component. The statistical significances of the mentor's perceptions of the effectiveness of the professional development component were determined in relation to the school districts' sizes in which the mentor teachers served, the grade level in which the novice teachers taught and the certification route of the novice teachers.

School Districts' Sizes

The categorization of school districts' in which the novice teachers were assigned included small, medium, and large. However, some of the mentors served novice teachers who taught in all three school district sizes. Perceptions of the mentors representing medium-sized and large districts seemed to indicate that professional development component as very effective with mean scores of 4.89 and 5.00 respectively. The mentors representing online teacher induction programs serving small school districts and those with novice teachers in all sizes of all districts appeared to perceive the professional development as effective with means of 4.29 and 4.20, respectively. However, mentors' perceptions of professional development components were similar for mentors representing all school district sizes; thus, failing to demonstrate a statistically significant difference.

Grade Levels Taught

The mentors served either novice teachers placed in secondary positions or those assigned to either elementary or secondary positions. The perceptions of mentors representing online teacher induction programs serving secondary and secondary or elementary appeared to be similar for both groups. Mentors of secondary novice teachers seemed to perceive this component as very effective with a mean of 4.60 while mentors of elementary and secondary novice teachers seemed to perceive the component similarly effective with a mean of 4.44. Therefore, with similar perceptions, a statistically significant difference failed to be detected.

Certification Routes

The mentors served either novice teachers, who were certified, or novice teachers, who were certified or receiving an alternative certification. Mentors of certified teachers appeared to perceive the professional development component as very effective with a mean of 4.71. Additionally, mentors of certified or alternatively certified novice teachers seemed to perceive this component as effective with a mean of 4.29. With similar perception scores, no statistically significant difference was found when comparing these two groups of mentors' perceptions.

Emotional Support Component

Of the 51 respondents, 36 (or 71 percent) of the mentors indicated that they were involved in an online teacher induction program that included an emotional support component. The statistical significance of the mentor's perceptions of the effectiveness of the emotional support component were determined in relation to school district size in

which they served, the grade level at which the novice teachers taught and the novice teachers' certification route.

School Districts' Sizes

The size of the school districts served by the mentors was categorized as small, medium or large school districts. However, some of the mentors served novice teachers assigned to all three school district sizes. The mentor's perceptions of the effectiveness of the emotional support component appeared to range from moderately effective to very effective. Mentors of novice teachers assigned to large school districts appeared to perceive emotional support component as very effective with a mean of 5.00. Mentors assisting novice teachers in either small or all sized school districts seemed to perceive the emotional support component as effective with means of 4.39 and 3.89, respectively. The perceptions of mentors supporting novice teachers in medium-sized school districts appeared to be the lowest at moderately effective with a mean of 3.00. The perceptions of the mentors in large school districts appeared to be statistically significantly different with $p = 0.01$ at $p < .05$, when compared to the perceptions of the mentors of novice teachers in medium-sized school districts.

Grade Levels Taught

The mentors served either novice teachers who were placed in secondary positions or novice teachers serving in either secondary or elementary positions. Both groups of mentors appeared to perceive the emotional support component as effective. The means of the mentors' perception scores demonstrated a similarity. Perception scores for mentors of secondary novice teachers had a mean of 3.86 while the perception

scores for mentors of elementary and secondary teachers had a mean of 3.91. The similar means resulted in no statistically significant difference between the perceptions of the two groups of mentors.

Certification Routes

Mentors of certified novice teachers and mentors of certified novice teachers or novice teachers who earn alternative certification responded to the ITUS. The mentors of certified novice teachers seemed to perceive this component as moderately effective with a mean of 3.40, while the mentors of certified and alternatively certified novice teacher seemed to perceive emotional support component as very effective with a mean of 4.50. The perceptions of these groups of mentors were statistically significantly different with $p = 0.00$ at $p < 0.05$.

Reflection Component

Of the 51 respondents, 32 (or 63 percent) of the mentors indicated that they were involved in an online teacher induction program that included a reflection component. The school districts' size in which the novice teachers served by the mentors were assigned varied in size, small, medium and large, while other mentors served novice teachers assigned to all three sizes of school districts' sizes. The statistical significance of the mentor's perceptions of the effectiveness of the reflection component were determined in relation to the school districts' sizes in which the novice teachers taught, the grade level the novice teachers taught and the novice teachers' certification route.

School Districts' Sizes

The mentor's perceptions of the reflection component appeared to range from moderately effective to effective. Mentors with novice teachers in small and medium sized school districts appeared to perceive the reflection component as effective with means of 3.67 and 3.78 respectively. The perceptions of mentors with novice teachers in all size districts and large school districts seemed to indicate that the reflection component was moderately effective with means of 3.40 and 2.67 respectively. The calculation of the Kruskal-Wallis Test gave a significance of $p = 0.41$ indicating that the means of the mentors' perception of the reflection component were similar. School district size failed to affect mentors' perceptions of the effectiveness of the reflection component.

Grade Levels Taught

The mentors served either novice teachers in secondary positions or those novice assigned to secondary or elementary positions. Perceptions of mentors of secondary teacher seemed to indicate that the reflection component was moderately effective with a mean of 3.19. Mentors of elementary and secondary novice teachers appeared to perceive reflection component as effective with a mean of 3.92. The grade level in which the novice teacher was assigned failed to affect the mentors' perceptions of the effectiveness of the reflection component.

Certification Routes

Mentors were assigned to either certified novice teachers or those certified or alternatively certified novice teachers. Mentors of certified novice teachers appeared to

perceive reflection as effective with a mean of 3.90. A mean of 3.31 seemed to indicate that the reflection component was perceived as moderately effective by mentors' of certified or alternatively certified novice teachers. The means of the perceptions of these two groups of mentors failed to be statistically significantly different.

Formative Observation Component

Of the 51 respondents, 30 (or 59 percent) of the mentors indicated that they were involved in an online teacher induction program that included a formative observation component. The school districts' sizes were categorized as small, medium, and large. Some of the mentors served novice teachers who were placed in all three school district sizes. The statistical significance of the mentor's perceptions of the effectiveness of the formative observation component were determined in relation to the school districts' sizes of mentors, the grade level taught and certification route of the participating novice teachers.

School Districts' Sizes

The mentors' perceptions of the formative observation component in relation to school districts' sizes appeared to range from ineffective to effective. The mentors assisting novice teachers in all district sizes seemed to perceive the formative observation component as ineffective with a mean of 1.25. The small districts mentors seemed to perceive formative observations as somewhat effective with a mean of 2.33. The perceptions of mentors with novice teachers assigned to medium and large school districts appeared to be similar. Both groups seemed to perceive formative observation components as effective with means of 3.67 and 3.50, respectively. A statistically

significant difference appeared to be found between the perceptions of mentors of novice teachers assigned to medium-sized districts and those of novice teachers in all district sizes.

When mentors' perceptions of the effectiveness of the formative observation component who served novice teachers employed in large school districts were compared to the mentors' perceptions of the effectiveness of formative observation who served novice teachers placed in school districts of all sizes, a statistically significant difference was found at $p < 0.05$ with $p = 0.02$. Additionally a marginally statistically significant difference also appeared to occur between the perceptions of mentors of novice teachers in large districts and those of novice teachers in all districts. A significance value of 0.05 was calculated at $p < 0.05$.

Grade Levels Taught

Mentors serving either novice teachers placed in secondary positions or novice teachers who were placed in either elementary or secondary positions. Both groups of mentors appeared to perceive formative observations as moderately effective. The mean of the perception scores of mentors of secondary novice teachers was 2.67 while the mean of the perceptions scores of the mentors of both elementary and secondary novice teachers was calculated to be 2.56. The Mann-Whitney Test seemed to indicate no statistically significant difference with a significance value of 0.76 at $p < 0.05$.

Certification Routes

The mentors served either certified novice teachers or both certified or alternatively certified novice teachers. The mean of mentors' perceptions of certified

novice teachers appeared to indicate that the formative observation component was moderately effective with a value of 3.13. The mentors of certified or alternatively certified novice teacher seemed to perceive formative observations as somewhat effective with a mean of 2.00. However, the perception scores of both groups were not statistically significantly different.

Researcher have found that an effective teacher induction program has a retention rate of 92 to 96 percent and assists novice teachers in focusing on teaching and learning (Fideler & Haselkorn, 1999; Fiemen-Nemser, 2001; Moon Merchant, 2005; Odell & Huling, 2000; RNT, 1999). Darling Hammond (1999) reported that the support of a high quality mentor affected the attrition rate of novice teachers, and resulted in significant student achievement gains. These gains were experienced regardless of the students' socio-economic status or culture (Darling-Hammond, 1999). Challenges faced by novice teachers were minimized through collaboration and cooperation available through opportunities provided by teacher induction programs (Stallings & Quinn, 1991).

Teacher induction programs included activities designed to support novice teachers emotionally and professionally (Smith & Ingersoll, 2004). The emotional support component provides opportunities for collegial support (Guyton & Hidalgo, 1995). Through purposeful conversations within learning communities of peers and experienced teachers, novice teachers learn effective instructional strategies (Feiman-Nemser, 2001). Professional development component provides a good foundation to develop instructional strategies and skills (Fideler & Haselkorn, 1999; Johnston, 1985;

Lemke, 1994). A formative observation component provided opportunities for novice teachers to practice appropriate implemented instructional strategies (McCann et al., 2005). Time to discuss research-based teaching practices increased novice teachers' knowledge of pedagogy (Marshak & Klotz, 2002) during the reflection component. Novice teachers closely examined their experiences (Killion & Todnem, 1991). Providing time to reflect within an online teacher induction program enabled novice teachers to become more self-confident and learn additional instructional strategies (Villar, 2004). A combination of components providing emotional and professional support addressed novice teachers' learning and implementation of research-based instructional strategies (Smith & Ingersoll, 2004).

Conclusions

Recommendations

Recommendations were based on the literature review and the results of this study. Therefore, it is suggested that online teacher induction programs consist of the emotional support and professional development components via technological venues to support novice teachers. Professional development component was effective regardless of the school districts' sizes, grade level taught or certification route of the novice teachers. Meaningful professional development addressed the specific challenges of novice teachers (McCann et al., 2005). Through the professional development component, novice teachers developed a deeper knowledge of content and curriculum (Jorissen, 2002). Technology has transformed the way people live and learn (Cetron & Cetron, 2004). It provides opportunities for novice teachers to collaborate, develop

professionally, enhance instructional skills, and reflect on their practice regardless of scheduling conflicts, geographic limitations or cost constraints (Feiman-Nemser, 2001; RNT, 1999; Single & Muller, 2001; Yearwood & Nichols, 1998). Technology's flexibility has bridged time and distance providing novice teachers' quick access to external networks (Psaromiligkos & Retalis, 2003; Roessingh & Johnson, 2005). Through the Internet, previously isolated people interacted with more experienced teachers (Yearwood & Nichols, 1998).

To improve novice teachers' pedagogical knowledge, it is suggested that online teacher induction programs employ video streaming, videotapes, and websites to deliver the professional development component. Video streaming and videotapes has been suggested to enable online teacher induction programs to provide expertise regarding all issues faced by novice teachers. To address these issues, quality presentations by experts through the use of video streaming and videotapes has been suggested. A number of novice teachers would be able to view these presentations regardless of their locations via video streaming. Videotapes of these types of presentations, available via the mail, have been suggested to overcome the scheduling conflicts, geographic limitations, and cost constraints. Websites were only perceived as moderately effective by the participating mentors; however, a website has been suggested a cost effective support for professional development. Information has been made available through the use of computers and electronic mail, chats and bulletin boards, LCD projectors, DVD or video systems, and audio systems (Menlove, & Kraft, 2004). In 1996, Gold posited that collaboration could occur through the use of electronic mail or bulletin boards.

Further, professional development resources have been made available via websites to increase the knowledge of novice teachers' instructional skills (Ayers & Griffin, 2005). Novice teachers have explored research-based ideas and sought information from experts in fields of education (Norton & Gonzales, 1998).

Electronic mail was most effective for providing emotional support. However, telephones, bulletin boards, video conferences, and chats were also effectively utilized to emotionally support novice teachers. Therefore, to provide novice teachers with an emotional support system and connect with peers and experienced teachers, it was suggested that online teacher induction programs employ electronic mail, telephones, bulletin boards, video conferences and chats to deliver the emotional support component. Face-to-face meetings have been suggested to facilitate the trust relation between novice teachers and mentor and the relationship among groups of novice teachers necessary for open communication via technological venues. Electronic mail and bulletin boards have enabled novice teachers to communicate with mentors or other novice teachers without concern for schedules, location and cost. For a more timely response, chats have been suggested. Chats have provided synchronous communication that overcomes location limitations and cost constraints. Telephones and video conferences have been suggested for a more personal touch. When a face-to-face meeting is unavailable due to scheduling conflicts, location limitations or cost constraints, telephones would enable novice teachers to hear the voice of a mentor. Video conferencing would enable novice teachers to see the face of a mentor.

The use of electronic mails allowed previously isolated participants to connect with peers and mentors (Cifuentes & Shih, 1999; Lemke, 1994). The Internet provided support and allowed more one-to-one time communication (Cifunetes, 1996); thereby allowing novice teachers to interact with mentors (Muller, 1997). Technological venues were cost effective, available and flexible enabling novice teachers from various geographic regions to communicate with mentors and peers (DeWert et al., 2003; Muller, 1997).

Implications for Further Research

The following implications are based on the findings and conclusions of this study:

1. Determine whether a statistically significant difference exists between the novice teachers' perception scores of each component and their mentors' perception scores of each component provided by an online teacher induction program.
2. Conduct a qualitative study documenting the experiences of a few novice teachers involved in the originally surveyed online teacher induction programs.
3. Conduct a similar study to determine the extent emotional support, professional development, formative observation, and reflection components were implemented and the mentors' perceptions of those components a few years later.
4. Determine the retention rate of an online teacher induction program.

5. Compare the retention rate of online teacher induction programs with the retention rate of traditional face-to-face teacher induction program.
6. Conduct a qualitative study documenting novice teachers' experiences utilizing technological venues to communicate with mentors and peers through the emotional support component of an online teacher induction program.
7. Conduct a qualitative study documenting novice teachers' experiences regarding the professional development component utilizing technological venues of an online teacher induction program.
8. Compare trained mentors' perception scores for component of online teacher induction programs with the perceptions of mentors who did not receive training.
9. Conduct a qualitative study to determine the methods utilized by mentors to implement formative observation component in an online teacher induction program.
10. Conduct a qualitative study to determine the methods utilized by mentors to implement the reflection component in an online teacher induction program.

Summary

In this chapter the results of the study were summarized, recommendations made for online teacher induction programs, the technological venues utilized, and implications for further research were discussed. For online teacher induction programs, the results of the ITUS appeared to suggest the implementation of the professional

development and emotional support components. Further, video streaming, videotapes and web resources were suggested to deliver the professional development component, while web resources for this component were moderately effective. To implement the emotional support component, electronic mail, telephones, and bulletin boards were perceived to be very effective. Therefore, it appears that available online teacher induction programs effectively deliver professional development and emotional support components through the utilization of technology.

REFERENCES

- Angelle, P. S. (2002, February). *T.O.S.S. it to the new teacher: The principal's role in the induction process*. Paper presented at the Annual Meeting of the Southwest Educational Research Association, Austin, TX.
- Arends, R. & Regazio-Digilio, A. (2000). *Beginning teacher induction: Research and examples of contemporary practice*. (ERIC Document Reproduction Service No. 450074)
- ASCD. (1996). *The executive director's 1995 annual report*. Alexandria, VA: Author.
- Ayers, S. & Griffin, L. (2005). PETE mentoring as a mosaic. *Journal of Teaching in Physical Education*, 24, 368-378.
- Babinski, L.M. & Rogers, D.L. (1998). Supporting teachers through consultee-centered group consultation. *Journal of Educational and Psychological Consultation*, 9(4), 285-308.
- Ball & Cohen. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3-32). San Francisco, CA. Jossey Bass.
- Ballantyne, R., & Hansford, B. (1995). Mentoring beginning teachers: A qualitative analysis of process and outcomes. *Educational Review*, 47, 297-308.
- Banks, J. A. (2001). Approaches to multicultural curriculum reform. In J. A. Banks & C. M. Banks (Eds.), *Multicultural education: Issues & perspectives* (4th ed., pp. 225-246). New York: John Wiley and Sons, Inc.

- Bartell, C.A. (2005). *Cultivating high-quality teaching through induction and mentoring*. Thousand Oaks, CA: Corwin Press.
- Boreen, J., & Niday, D. (2000). Breaking through the isolation: Mentoring beginning teachers. *Journal of Adolescent and Adult Literacy*, 44(2), 152-163.
- Britzman, D.C. (1986). Cultural myths in the making of a teacher: Biography and social structure in teacher education. *Harvard Educational Review*, 54(4), 442-456.
- Brown, J., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18, 32-42.
- Byrnes, D., & Kiger, G. (Eds.). (1996). *Common bonds: Anti-bias teaching in a diverse society*. Washington DC: Association for Childhood Education International.
- Cady, J. M. (1998). Reflective practice groups in teacher induction: Building professional community via experiential knowledge. *Education*, 118(3), 459-470.
- Canning, C. (1991). What teachers say about reflection. *Educational Leadership*, 48(6), 18-21.
- Carter, N. P. (Ed.). (2003a). *Convergence or divergence: Alignment of standards, assessment and issues of diversity*. Washington, DC: American Association of Colleges for Teacher Education.
- Carter, N. P. (2003b). Diversity and standards: Defining the issues. In N. P. Carter (Ed.), *Convergence or divergence: Alignment of standards, assessment and issues of diversity* (pp. 9-20). Washington, DC: American Association of Colleges for Teacher Education.

- Carter, N. P. & Larke, P. J. (1995). Preparing the urban teacher: Reconceptualizing the experience. In M. O'Hair, & S. Odell (Eds.) *Teacher education yearbook II*. (pp. 77-95). Thousand Oaks, CA: Corwin Press, Inc.
- Carter, N. P., & Larke, P. J. (2003). Examining INTASC Standards through the lens of multicultural education: Meeting the needs of underserved students. In N. P. Carter (Ed.), *Convergence and divergence: Alignment of standards, assessment and issues of diversity* (pp. 55-70). Washington, DC: American Association of Colleges for Teacher Educators.
- Carter, N. P., Gayles-Felton, A., Hilliard, R., & Vold, L. (1999). Dealing with issues of racism in the classroom: Preservice and beginning teachers. In N. Quisenberry & J. McIntyre (Eds.), *Educators healing racism* (pp. 87-101). Reston, VA: Association of Teacher Educators.
- Cetron, M. & Cetron, K. (2004). A forecast for schools: Projections from a noted futurist and an educator provide direction for schools. *Educational Leadership*, 61(4), 22-29.
- Cifuentes, L. (1996) From sages to guides: A professional development study. *Journal of Technology and Teacher Education*, 5(1), 67-77.
- Cifuentes, L., & Shih, Y. D. (2000). Virtual field-based teacher preparation: Can it work? *International Journal of Educational Telecommunications*, 6(4), 287-302.

- Cifuentes, L. & Shih, Y. (2001). Teaching and learning online: A collaboration between U.S. and Taiwanese students. *Journal of Research on Computing in Education*, 33(4), 456-474.
- Cifuentes, L., Beller, C., & Portella, J. (1999). Integrating desktop video conferencing into middle school classrooms and teacher education. *International Journal of Educational Telecommunications*, 5(1), 79-91.
- Clark, F. T. (2001). *Who is teaching our children: The best practices of mentors*. Retrieved September 18, 2003, from http://www.ascd.org/publications/class_lead/200105/clark.html.
- Claycomb, C. (2000, Winter). High-quality urban school teachers: What they need to enter and to remain in hard-to-staff schools. *The State Education Standard*, 4, 17-20.
- Cole, M. (1985). The zone of proximal development: Where culture and cognition create each other. In J. V, Wertsch (Ed.). *Culture, communication, and cognition* (pp. 112-139). New York: Cambridge University Press.
- Collins, A. (1991). Cognitive apprenticeship and instructional technology. In L. Idol and B.F. Jones (Eds.) *Education values and cognitive instruction: Implications for reform* (pp. 121-138). Hillsdale, N.J. Lawrence Erlbaum Associates.

- Collins, A., Brown, J., & Newman, S. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing and mathematics. In L. B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honor of Robert Glaser* (pp. 453-494). Hillsdale, NJ: Erlbaum Associates.
- Collins, T. (1999). *Attracting and retaining teachers in rural areas*. Retrieved January 1, 2002, from <http://www.ael.org/eric/publicat.htm#digests>
- Conway, C., Hansen, E., Schulz, A., Stimson, J., & Wozniak-Reese, J. (2004). Becoming a teacher: Stories of the first few years. *Music Educators Journal*, 91, 45-51.
- Cooper, M. G., & Morey, A. I. (1989). Developing thoughtful practitioners: A school/university collaboration for retaining first-year teachers. In A. M. Garibaldi (Ed.), *Teacher recruitment and retention*. Washington DC: National Education Association.
- Darling-Hammond, L. (1998). *Using standards to support student success*. Retrieved November 19, 2001 from <http://cpdc.k12.ca.us/briefs/015/03.html>
- Darling-Hammond, L. (1999). *Teaching and California's future: Professional development for teachers, setting the stage for learning from teaching*. Santa Cruz, CA: Center for the Future of Teaching and Learning.
- Darling-Hammond, L. (2000). *Solving the dilemmas of teacher supply, demand, and standards: How we can ensure a competent, caring, and qualified teacher for every child*. New York: National Commission on Teaching & America's Future.
- Darling-Hammond, L. (2005). Foreword. In C. A. Bartrell (Ed.), *Cultivating high-quality*

- teaching through induction and mentoring* (pp. xi - xiii). Thousand Oaks, CA: Corwin Press.
- Darling-Hammond, L. & McLaughlin, M. (1995). Policies that support professional development in an era of reform. *Phi Delta Kappan*, 76(8), 597-604.
- Darling-Hammond, L. & Sykes, G. (2003). *Wanted: A national manpower policy for education*. Denver, Co: Education Commission of the States.
- Davie, L. (1989). Facilitation techniques for the online tutor. In R. Mason & A. Kaye (Eds.) *Mindweave: Communications, computers and distance education* (pp. 43-62). Oxford: Pergamon Press.
- DeCoker, G. (2000). Heads-up technology. *Educational Leadership*, 57(8), 61-62.
- Degenais, R. (1996). *Mentoring program standards*. (ERIC Document Reproduction Service No. ED 419776)
- Delgado, M. (1999). Lifesaving 101: How a veteran teacher can help a beginner. *Educational Leadership*, 56(8), 27-29
- Delpit, L. (1995). *Other people's children: Cultural conflict in the classroom*. New York: The New Press.
- DeWert, M.H., Babinski, L.M. & Jones, B.D. (2003). Safe passages: Providing online support to beginning teachers. *Journal of Teacher Education*, 54(4), 311-320.
- Dianda, M., Ard, B., Quartz, K., Tushnet, N., Radio, J., & Bailey, J. (1991). *Support component of the California new teacher project: Second-year evaluation report 1990-1991*. Los Alamitos, CA: Southwest Regional Laboratory.

- Eisenman, G. & Thornton, H. (1999). Telementoring: Help new teachers through the first year. *THE Journal*, 26(9), 79-83.
- Ettorre, B. (1997). How are companies keeping the employees they want. *Management Review*, 86(5), 49-53.
- Feiman-Nemser, S. (2001). *Educative mentoring: A focus on teacher development*. Paper presented at the annual Symposium on Teacher Induction, San Jose, CA.
- Feiman-Nemser, S. Carver, C., Schwille, S. & Yusko, B. (1999). Beyond support: Taking new teachers as learners. In M. Scherer (Ed.), *A better beginning* (pp. 13-17). Alexandria, VA: Association for Supervision and Curriculum Development.
- Fideler, E., & Haselkorn, D. (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States*. Belmont, MA: Recruiting New Teachers.
- Foster, M. (2004). An innovative professional development program for urban teachers. *Phi Delta Kappan*, 85, 401-406.
- Freedman, M. (1992). *The kindness of strangers: Reflections on the mentoring movement*. Philadelphia, PA: Public/Private Ventures.
- Freiberg et al., M., Zbikowski, J. & Ganser, T. (1994). *Perceptions of beginning teachers in an urban setting: Does mentoring make a difference?* Paper presented at Annual Meeting of Associated of Teacher Educators, Atlanta, GA.
- Fuller, E. (2003, August). *State Board for Educator Certification meeting highlights*. Retrieved December 13, 2003, 2004, from <http://www.sbec.state.tx.us/SBECOnline/default.asp>

- Furlong, J. (2000). School mentors and university tutors: Lessons from the English experiment. *Theory Into Practice*, 39(1), 12-19.
- Gall, M., Borg, W. & Gall, J. (1996). *Educational research: An introduction*. White Plains, NY: Longman Publishers.
- Ganzer, T. (2000, March). *Evaluating a university mentoring program for K-12 teachers: The University of Wisconsin-Whitewater beginning teacher assistance program*. Paper presented at the annual meeting of the International Mentoring Association Conference, New Orleans, LA.
- Ganzer, T. (2001, March). *Beginning teaching in Jamaica: Challenges and assistance*. Paper presented at the annual meeting of the International Mentoring Association, Washington, DC.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research & practice*. New York: Teachers College Press.
- Gay, G., & Howard, T. (2000, Summer). Multicultural teacher education for the 21st century. *The Teacher Educator*, 36, 1-16.
- Geis, G. & Smith, M. (1992). The function of evaluation. In H. Stolovitch & E. Keeps (Ed.), *Handbook of human performance technology: A comprehensive for analyzing and solving performance problems in organizations* (pp. 130-150). San Francisco, CA: Jossey Bass Inc.
- Geringer, J. (2000). *In pursuit of quality teaching: Five key strategies for policymakers*. Retrieved January 15, 2002, 2004, from <http://www.mcrel.org/products/school-improve/qualitybrief.pdf>

- Giebelhaus, C. R., & Bendixen-Noe, M. (2000). *"I'll be there for you." Mentoring and beginning teacher success*. Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Chicago, IL.
- Gold, Y. (1996). Beginning teacher support: Attrition, mentoring and induction. In J. Sikula (Ed.) *Handbook of research on teacher education* (pp. 548-594). New York: Simon and Shuster MacMillan.
- Gold, Y., & Roth, R. (1993). *Teachers managing stress and preventing burnout: The professional health solution*. London: Falmer Press.
- Grant, C. (1989). Urban teachers: Their new colleagues and curriculum. In J. Krevotics and Edward Nussel (Eds.), *Transforming urban education*, (pp.315-326). Boston: Allyn and Bacon.
- Gravett, L. (2000) *Mentoring that fails: How to defeat a sound concept*. . Paper presented at the meeting of the International Mentoring Association, New Orleans, LA.
- Gray, W. A., & Gray, M. M. (1985). Synthesis of research on mentoring beginning teachers. *Educational Leadership*, 40(3), 37-43.
- Griffin, N. , Wohlstetter, P. & Bharadwaja, L. (2001). Teacher coaching: A tool for retention. *The School Administrator*, 58(1), 38-40.
- Guyton, E. & Hidalgo, F. (1995). Characteristics, responsibilities, and qualities of urban school mentors. *Education and Urban Society*, 23(1), 40-47.
- Haberman, M. (1995). *Star teachers of children in poverty*. West Lafayette, IN: Kappa Delta Pi.

- Haberman, M. (2000). Increasing the number of high-quality African American teachers in urban schools. *Journal of Instructional Psychology*, 26, 208-212.
- Haberman, M. (2002). *Who benefits from failing urban school districts? An essay on equity and justice for diverse children in urban poverty*. Retrieved August 23, 2004, from <http://www.educationnews.org>
- Halford, J. (1999). Easing the way for new teachers. In M. Scherer (Ed.), *A better beginning* (pp. 13-17). Alexandria, VA: Association for Supervision and Curriculum Development.
- Halpern, D. (2000). *Using the principles of cognitive science and learning theories to enhance learning and teaching*. Retrieved April 30, 2004, from http://www.pkal.org/template2.cfm?c_id=993
- Harris, D.L. (1995). *Composing a life as a teacher: The role of conversation and community in teachers' formation of their identities as professionals*. Doctoral Dissertation, Michigan State University, East Lansing.
- Harris, R. (1999). Computer conferencing issues in higher education. *Innovations in Education and Teaching International*, 36(1), 80-91.
- Harrison, J.K. (2001). The induction of newly qualified teachers. *Journal of Education for Teaching*, 27(3), 277-279.
- Heath-Camp, B. (1992). *On becoming a teacher: An examination of the induction of beginning vocational teacher in American public schools*. Berkeley: National Center for Research in Vocational Education, University of California. (ERIC Document Reproduction Service No. ED 342926)

- Henke, R.R., Chen, X. & Geis, S. (2000). *Progress through the teacher pipeline: 1992-1993 college graduates and elementary/secondary school teaching as of 1997*. Washington, DC: United States Department of Education, Office of Educational Research and improvement, NCES.
- Henson, T.S., & Shapiro, K.S. (1999). The video conferencing connection. In M. Scherer (Ed.), *A better beginning: Supporting and mentoring new teachers* (pp. 169-175). Alexandria, VA: Association for Supervision and Curriculum Development.
- Hersh, S. B., Stroot, S., & Snyder, M. (1993, April). *Mentoring entry year teachers in rural communities: A model program*. Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta, GA.
- Hertzog, H. S. (2002). "When, how and who do I ask for help?" Novices' perceptions of problems and assistance. *Teacher Education Quarterly*, 29, 25-41.
- Hodgkinson, H. (2002). Demographics and teacher education. *Journal of Teacher Education*, 53(2), 102-105.
- Holloway, J. H. (2001, May). The benefits of mentoring. *Educational Leadership*, 58, 85-86.
- Holt-Reynolds, D. (1995). Pre-service teachers and coursework: When is getting it right wrong? In M. O. H. S. J. Odell (Ed.), *Educating teachers for leadership and change: Teacher yearbook* (Vol. 3, pp. 117-137). Thousand Oaks, CA: Corwin Press.

- Horn, P. J., Sterling, H. A., & Subhan, S. (2002). *Accountability through "Best practice" induction models*. Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, New York.
- Howey, K. & Zimpher, N. (1991). *Restructuring the education of teachers*. Reston, VA: Association of Teacher Educators. (ERIC Document Reproduction Service No. 330 649)
- Huling, L., & Resta, V. (2001). Teacher mentoring as professional development. *ERIC clearinghouse on teaching and teacher education*. (ERIC Document Reproduction Service No. ED460125)
- Huling-Austin, L. (1986). What can and cannot reasonably be expected from teacher induction programs. *Journal of Teacher Education*, 37(1), 2-5.
- Huling-Austin, L. (1989). *Teacher induction: A synthesis of research on teacher Induction programs and practice*. Washington, DC: National Education Association.
- Ingersoll, R. M. (1999). Do schools vary in their levels of out-of-field teaching? *Educational Researcher*, 28, 26-37.
- Ingersoll, R. M. (2000). The status of teaching as a profession. In J. Ballantine & J. Spade (Eds.), *Schools and society: A sociological approach to education* (pp. 115-129) Belmont, CA: Wadsworth Press.
- Ingersoll, R. (2001, Fall). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, 38, 499-534.

- Ingersoll, R. (2002, June). *The teacher shortage: A case of wrong diagnosis and wrong prescription*. Retrieved September 30, 2002, from http://www.nctaf.org/whatsnew/docs/charts_revised_8.15A.02.pdf
- Ingersoll, R. M., & Kralik, J. M. (2004). *The impact of mentoring on teacher retention: What the research says*. Retrieved October 8, 2004, from <http://www.ecs.org/clearinghouse/50/36/5036.html>
- Ingersoll, R. M., & Smith, T. M. (2004). Does teacher induction and mentoring matter? *NASSP Bulletin*, 88, 28-40.
- Irvine, J. J. (2003). *Educating teachers for diversity: Seeing with a cultural eye*. New York: Teachers College Press.
- Isaac, S. & Michael, W.B. (1997). *Handbook in research and evaluation*. San Diego, CA: Educational and Industrial Testing Services.
- Joerger, R. M., & Bremer, C. D. (2001). *Teacher induction programs: A strategy for improving the professional experience of beginning career and technical education teachers*. Columbus, OH: National Dissemination Center for Career and Technical Education.
- Johnston, J. (1985). Teacher induction: Problems, roles and guidelines. In P. Burke & R. Heideman (Eds.), *Career-long teacher education* (pp. 194-222). Springfield, IL: Charles C. Thomas Publisher.
- Jorissen, K.T. (2002). Retaining alternate route teacher: The power of professional integration in teacher preparation and induction. *High School Journal*, 86(1), 45-57.

- Joyce, B., & Showers, B. (1980). *Student achievement through staff development*. New York: Longman.
- Joyce, B. & Showers, J. (2002). *Student achievement through staff development* (3rd ed.). Alexandria, VA: Association of Supervision and Curriculum Development.
- Justice, M., Greiner, C., & Anderson, S. (2003). Determining the influences of traditional Texas teachers vs. teachers in the emergency teaching certification program. *Education, 124*, 376-389.
- Kalyanpur, M. & Harry, B. (1999). *Culture in special education: Building reciprocal family professional relationships*. Baltimore, MD: Paul H Brookes Publishing.
- Kent, S. (2000). Problems of beginning teachers: Comparing graduates of bachelor's and master's level teacher preparation programs, *The Teacher Educator, 35*, 83-96.
- Kerka, S. (1998). New perspectives on mentoring. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. 418249)
- Killion, J. & Todnem, G. (1991). A process for personal theory building. *Educational Leadership, 48*(6), 14-16.
- Kirkpatrick, D. (1998). *Evaluating training programs: The four levels*. San Francisco, CA: Berrett-Koehler.
- Kyed, S., Marlow, M., Miller, J., Owens, S. & Sorenson, K. (2003). A teacher candidate induction: Connecting inquiry, reflection, and outcomes. *Education, 123*(3), 470-482.

- Larke, P. J. (1992, Winter). Effective multicultural teachers: Meeting the challenges of diverse classrooms. *Equity & Excellence*, 25, 133-138.
- Larke, P. J., Patitu, C. L., Webb-Johnson, G., & Young-Hawkins, L. (1999). Embracing minority graduate students: The mentoring approach. *NASAP Journal*, 2(1), 47-55.
- Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. Cambridge, UK: Cambridge University Press.
- Lave, J., & Wenger, E. (1991/2003). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Lemke, J. (1994). *Teacher induction in rural and small school districts*. (ERIC Document Reproduction Service No. ED 369589.
- Lemke, L. C. (1995). Attracting and retaining special educators in rural and small schools: Issues and solutions. *Rural and Special Education Quarterly*, 14(20), 25-30.
- Little, J. W. (1990). The mentor phenomenon and the social organization of teaching. In C. B. Cazden (Ed.), *Review of Research in Education* (pp. 297-351). Washington, DC: American Educational Research Association.
- Marchak, J. & Klotz, J. (2002). *To mentor or to induct: That is the question*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Chattanooga, TN.
- Matus, D. E. (1999). An innovative strategy supports student teachers in urban secondary schools. *Urban Secondary Schools*, 73, 37-41.

- Maynard, T. (2000). Learning to teach or learning to manage mentors? Experienced of school based teacher training. *Mentoring & tutoring*, 8(1), 17-30.
- McCann, T. M., Johannessen, L. R., & Ricca, B. (2004). Why do teachers leave, and what can we do to keep them? *Hot Topic*, 40, 1.
- McKenzie, J. (2000). *Beyond technology: Questioning, research and the information literate school community*. Bellingham, WA: FNO Press.
- Menlove, R. & Kraft, B. (2004). Preparing rural distance education preservice special educators to succeed. *Rural Special Education Quarterly*, 23(2), 18-26.
- Morrow, J. (1999). The teacher shortage: Wrong diagnosis, phony cures. *Education Week*, 64, 48.
- Merseth, K.K. (1991). Supporting beginning teachers with computer networks. *Journal of Teacher Education*, 42(2), 140-147.
- Meyer, T. (2002). Novice teacher learning communities: An alternative to one-on-one mentoring. *American Secondary Education*, 31(1), 27-42.
- Minami, M., & Ovando, C. J. (2001). Language issues in multicultural contexts. In J. A. Banks & C. M. Banks (Eds.), *Handbook of research on multicultural education* (pp. 427-444). San Francisco, CA: Jossey-Bass.
- Moir, E. (1999). The stages of a teacher's first year. In M. Scherer, (Ed.), *Better beginning: Supporting and mentoring new teachers* (pp. 19-23). Alexandria, VA: Association for Supervision and Curriculum Development.

- Moir, E., & Gless, J. (2002). *Quality induction: An investment in teachers*. Retrieved November 25, 2002, from <http://www.newteachercenter.org/article-CCETQInd.html>
- Molebash, P. (1999). Technology and education: Current and future trends. *Instructional Technology Journal*. Retrieved January 23, 2003 from <http://etext.virginia.edu/journals/itjournal/1999/molebash.html>.
- Moon Merchant, V. (1998, March). *Meeting the challenges of the future: Retaining entry year teachers*. Presentation to the SBEC Panel on Novice Teacher Induction Support Systems. Austin, TX.
- Moon Merchant, V. & Carter, N. P. (2004). A teacher induction model for urban settings: A follow-up study. *Journal of Public Management & Social Policy*, 10, 44-59.
- Muller, C.B. (1997, November). *The potential of industrial 'e-mentoring' as a retention strategy for women in science and engineering*. Retrieved January 12, 2003 from <http://www.engrng.pitt.edu/~fie97>.
- Murray, M. (1991). *Beyond the myths and magic of mentoring*. San Francisco, CA: Jossey-Bass.
- National Center for Education Statistics.(1996). *Sources of supply of newly hired teachers*. Washington, DC: United States Department of Education, Office of Educational Research and improvement, NCES

National Center for Education Statistics.(1997). *Characteristics of stayers, movers and leavers: Results from the teacher follow-up survey: 1994-1995*. Washington, DC: United States Department of Education, Office of Educational Research and Improvement, NCES

National Center for Education Statistics.(1998). *The condition of education 1998*. Washington, DC: United States Department of Education, Office of Educational Research and improvement, NCES.

National Center for Education Statistics. (1999). *Mini-digest of educational statistics, 1998* (No. NCES Publication No. 1999-0391). Washington, DC: U.S. Department of Education Printing Office.

National Center for Education Statistics.(2003). *The condition of education 2003*. Washington, DC: United States Department of Education, Office of Educational Research and improvement, NCES.

National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. Washington, DC: National Commission on Teaching and America's Future.

National Commission on Teaching and America's Future. (NCTAF) (2000). *Before it's too late: A report to the nation from the National Commission on Teaching and America's Future*. Washington, DC: U.S. Department of Education. Retrieved January 12, 2003 from <http://www.ed.gov/americanaccounts/glenn>.

- National Commission on Teaching and America's Future. (NCTAF) (2003). *No dream denied: A pledge to America's children*. Washington, DC: National Commission on Teaching and America's Future.
- Nicol, D., Minty, I. & Sinclair, C. (2003). The social dimensions of online learning. *Innovations in Education and Teaching International*, 40(3), 270-280.
- Norton, P. & Gonzales, C. (1998). Regional educational technology assistance initiative. *Journal of Research on Computing in Education*, 31(1), 25-48.
- Norton, S.M. (1999). Teacher retention: Reducing costly teacher turnover. *Contemporary Education*, 70(3), 52-56.
- Novice Teacher Support Project (2002). *Novice Teacher Support Project electronic mentoring handbook*. Retrieved November 17, 2003 from <http://ntsp.ed.uiuc.edu>
- Nugent, P., & Faucette, N. (2004). Developing beginning teachers through an interactive induction and internship program. *Action in Teacher Education*, 26, 53-63.
- Odell, S., & Huling, L. (2000). *Quality mentoring for novice teachers*. Indianapolis, IN: Kappa Delta Pi.
- Odell, S. J., & Ferraro, D. (1992). Teacher mentoring and teacher retention. *Journal of Teacher Education*, 43, 200-204.
- O'Neil, K. D., Wagner, R., & Gomez, L. M. (1996). Online mentors: Experimenting in science class. *Educational Leadership*, 54, 39-42.
- Paese, P. C. (1990). A review of teacher induction: Are special programs needed for beginning physical education teachers? *Physical Educator*, 47(3), 159-166.

- Pallant, J. (2001/2004). *SPSS survival manual: A step by step guide to data analysis using SPSS*. New York: Open University Press.
- Patterson, N. C., Roehrig, G. H., & Luft, J. A. (2003). Running the treadmill: Explorations of beginning high school science teacher turnover in Arizona. *High School Journal*, 86, 14-23.
- Perkins-Gough, D., Snyder, D., & Licciardi, B. (2004). The communication age: The 1990s and ASCD. *Educational Leadership*, 61(4), 94-101.
- Psaromiligkos, Y & Retalis, S. (2003). Re-evaluating the effectiveness of a web-based learning system: A comparative case study. *Journal of Educational Multimedia and Hypermedia*, 12(1), 5-20.
- Recruiting New Teachers, Inc. (RNT) (1998). *The essential-profession*. Belmont, MA. Author.
- Recruiting New Teachers, Inc. (RNT) (1999). *New strategies to curb teacher flight from the classroom gaining momentum nationwide: Quality and scope of induction varies dramatically, new study finds*. Retrieved October 15, 2003 from http://www.rnt.org/channels/clearinghouse/audience/media/1g16_media_pressnewstrategies.htm
- Recruiting New Teachers, Inc. (RNT) (2000). *The urban teacher challenge: Teacher demand and supply in the great city school*. Belmont, MA: Author.
- Richert, A. (2005). Inquiry about practice: Using web based materials to develop inquiry. *Teaching Education*, 16(4), 297-310.

- Roessingh, H. & Johnson, C. (2005). Online teaching and learning in TESL professional development. *The Quarterly Review of Distance Education*, 6(2), 107-115.
- Roth, W. M. & Tobin, K. (2002). Redesigning an "urban" teacher education program: An activity theory perspective. *Mind, Culture and Activity*, 9, 108-131.
- Saban, A. (2002). Mentored teaching as (more than) a powerful means of recruiting newcomers. *Education*, 122(4), 828-838.
- Sax, L., Gilmartin, S. & Bryant, A. (2003). Assessing response rate and nonresponsive bias in web and paper surveys. *Research in Higher Education*, 44(3), 409 – 432.
- Schafer, E. Stringfield, S. & Wolfe, D. (1992). An innovative beginning teacher induction program: A two-year analysis of classroom interactions. *Journal of Teacher Education*, 43(3), 181-192.
- Schlechy, P. & Vance, V. (1983). Recruitment, selection and retention: The shape of the teaching force. *The Elementary School Journal*, 83, 468-487.
- Schon, D.A. (1987). *Educating the reflective practitioner*. San Francisco, CA: Jossey-Bass.
- Shields, P. Esch, C., Humphrey, D. Wechsler, M., Chang-Ross, C. Gallagher, H, Guha, R., Tiffany-Morales, J. & Woodworth, K. (2003). *The status of the teaching profession 2003*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57, 1-22.
- Single, P. B., & Muller, C. B. (1999, April). *Electronic mentoring: Issues to advance*

research and practice. Paper presented at the Annual Meeting of the International Mentoring Association, Atlanta, GA.

- Single, P. B., & Muller, C. B. (2001). When email and mentoring unite: The implementation of a nationwide electronic mentoring program--MentorNet, the National Electronic Industrial Mentoring Network for Women in Engineering and Science. In L. Kyle (Ed.), *Creating mentoring and coaching programs: Twelve case studies from the real world of training* (pp. 107-122). Alexandria, VA: American Society for Training and Development.
- Sinsialio, M. (2002). *A statistical profile of the teaching profession*. ILO: Geneva and UNESCO: Paris.
- Smith, T. & Ingersoll, R. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal*, 41(2), 681-714.
- Smolkin, L. B., & Suina, J. H. (1994, July). *Rural reservation/urban cross-cultural teacher preparation program for American Indian and non-Indian teacher trainees*. Paper presented at the International conference by the Rural Education Research and Development Center, Townsville, Queensland, Australia.
- Snyder, K., Farrell, R., & Baker, N. (2000). *Online mentoring: A case study involving cognitive apprenticeship and a technology-enabled learning environment*. Paper presented at the World Conference on Educational Multimedia, Hypermedia and Telecommunications, Montreal, Quebec, Canada.

- Sparks-Langer, G. M., & Colton, A. B. (1991). Synthesis of research on teachers' reflective thinking. *Educational Leadership*, 48(6), 37-43.
- Stalling, J. A., & Quinn, L. F. (1991). Learning how to teach in the inner city. *Educational Leadership*, 49(3), 25-27.
- Stansbury, K., & Zimmerman, J. (2000). *Lifelines to the classroom: Designing support for beginning teachers*. San Francisco, CA: WestEd.
- Stanulis, R. N., Fallona, C. A., & Pearson, C. A. (2002). 'Am I doing what I am supposed to be doing?: Mentoring novice teachers through the uncertainties and challenges of their first year of teaching. *Mentoring & Tutoring*, 10(1), 71-81.
- Strong, M. (2004, October). *Induction, mentoring and teacher retention: A summary of the research*. Paper presented at the meeting of the Association of Teacher Educators of Europe, Agrigento, Italy.
- Stroot, S., Fowlkes, J., Langholz, J., Paxton, S., Stedman, P., Steffes, L. & Valtman, A. (1999). Impact of a collaborative peer assistance and review model on entry-year teachers in a large urban school setting. *Journal of Teacher Education*, 50(1), 27-41.
- Subic, A. & Maconachie, D. (2004). Flexible learning technologies and distanced education: A teaching and learning perspective. *European Journal of Engineering Education*, 29(1), 27-40.
- Surbeck, E., Han, E. & Moyer, J. (1991). Assessing reflective responses in journals. *Educational Leadership*, 48(6), 25-27.

- Texas State Board for Educator Certification Panel (SBEC) (1998). *Final report on novice teacher induction support system*, Retrieved October 15, 2003 from: www.sbec.state.tx.us/pubrep/induct.htm.
- Thies-Sprinthall, L. (1986). A collaborative approach for mentor training: A working model. *Journal of Teacher Education*, 37(6), 13-20.
- Tomlinson, P. (1995). *Understanding mentoring: Reflective strategies for school-based teacher preparation*. Buckingham, UK: Open University Press.
- U. S. Census Bureau. (2003). *American Community Survey: 2003 Data Profile*. Retrieved October 7, 2004, from <http://www.census.gov/acs/www/Products/Profiles/Single/2003/ACS/Tabular/010/01000US2.htm>
- Veenman, S. (1984, Summer). Perceived problems of beginning teachers. *Review of Educational Research*, 54, 143-178.
- Veenman, S., & Denessen, E. (2001). The coaching of teachers: Results of five training studies. *Educational Research and Evaluation*, 7, 385-417.
- Villar, A. G. (2004). *Measuring the benefits and costs of mentor-based induction: A value-added assessment of new teacher effectiveness linked to student achievement*. Paper presented at the National Symposium on Teacher Induction, San Jose, CA.
- Villegas, A. M., & Clewel, B. C. (1998). Increasing the number of teachers of color for urban schools. *Educational and Urban Society*, 31(1), 42-61.
- Villegas, A. M., & Lucas, T. (2002). *Educating culturally responsive teachers*. Albany, NY: State University of New York Press.

- Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Weiner, L. (1999). *Urban teaching: The essentials*. New York: Teachers College Press.
- Wineburg, S. (1997). *T. S. Eliot, collaboration, and the quandaries of assessment in a rapidly changing world*. Retrieved January 27, 2004, from <http://www.pdkintl.org/kappan/kwin9709.htm>
- Wojnowski, B. S., Bellamy, M. L., & Cooke, S. (2003). A review of literature on mentoring and induction of beginning teachers with an emphasis on the retention and renewal of science teachers. *National Science Teachers Association*, 23-33 (ERIC Document Reproduction Service No. ED472323).
- Wong-Park, M.G. (1997). *The relationship between assessment procedures in teacher support programs and teacher feeling of support*. Doctoral Dissertation. La Verne, CA: University of La Verne.
- Woodd, M. (1999). The challenges of telementoring. *Journal of European Industrial Training*, 23(3), 140-144.
- Yearwood, S. & Nichols, P. (1998). *Distance learning: The educational impact of evolving technology*. Austin, TX: State Board for Educator Certification.
- Yee, S. (1990). *Careers in the classroom: When teaching is more than a job*. New York: Teachers College Press.
- Zeichner, K. (1992). Rethinking the practicum in the professional development school partnership. *Journal of Teacher Education*, 43(4), 296-307.

Zumwalt, K. & Craig, E. (2005). Teachers' characteristics: Research on the demographic profile. In M. Cochran-Smith & K. Zeichner (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 111-260). Washington, DC: American Educational Research Association.

APPENDIX A

APPENDIX A

Dear _____:

My name is Kim Livengood. I am a doctoral student attending Texas A&M University and am currently in the process of conducting research for my dissertation regarding online induction/mentoring. I understand that you are involved with an online induction/mentoring program that is designed to help teachers face the challenges of the classroom. I hope that you are willing to participate in an online questionnaire that will allow me to collect data for my study. The purpose of this study is to determine the strategies presently utilized to implement components of online induction programs.

I will be calling in the next few days to give you additional information about the study and your participation.

Thanks you for your time,

Kim Livengood

APPENDIX B

APPENDIX B

Topics for discussion during phone conversation:

- Introduce myself: name, affiliation with Texas A&M University
- Refer to the electronic mail previously sent
- Describe the purpose of the study
- Describe the extent of their participation, if they are willing.
- Describe the next steps including: online survey, confidentiality and follow-up email and drawing
- Determine if they would be willing participants
- Ask if they could suggest any other possible participants
 - Thank them for their time

APPENDIX C

APPENDIX C

Dear _____:

My name is Kim Livengood. I am the doctoral student from Texas A&M University who spoke to you earlier regarding your participation in filling out a questionnaire pertaining to the online induction/mentoring program with which you are involved. I appreciate the time you have taken to speak with me and to fill out this questionnaire.

The questionnaire is available at www.hostedsurvey.com until (date) _____. Simply click on the link in this email or type this address into your browser to access the survey. Please take the time to fill out the questionnaire before _____ date.

The first question will ask for your name and contact information including address, phone number and email address. Only your contact information will be recorded to be included in the drawing and to contact the winner. The responses to the questionnaire will be coded to maintain confidentiality. The winner of the PDA will be notified via phone after (date) _____.

Thank you for your participation in the study,

Kim Livengood

APPENDIX D

APPENDIX D

Questionnaire

The following definitions are available to clarify the term usage. All specific titles or names will be coded to maintain confidentiality.

Definitions:

Program – formal induction program designed to assist novice teachers as they begin their professional career

Novice teacher – beginning teacher who has taught 0-2 years as the teacher of record

Mentor – an experienced teacher assigned to consistently communicate with a novice teacher over a period of time to provide emotional and professional support through instructional strategies

Emotional support – also known as mentoring, the process of communication between a mentor and a novice teacher to provide personal support

Professional Development – training provided to novice teachers to improve teaching abilities.

Formative observations – observation of the novice teacher for the purpose of providing feedback regarding instruction in an effort to assist the novice teacher's improvement

Reflection – novice teachers' consideration of the experiences in their classrooms or related to their teaching

Demographics

1. Contact information will be used to enter your name in the drawing for a PDA and to contact the winner.

Name:

Phone:

Address:

Email Address:
2. What is the title of your position?
3. What is your age?
4. What is the name of your program?
5. How long has the program in which you are involved in supporting novice teachers existed (in years)?
6. In which state does the online induction/mentoring program in which you are involved originate?
7. In how many states do the participating novice teachers reside?
8. Where do the participating novice teachers teach? (Check all that apply.)
 - a. Several districts
 - b. Many schools in one district
 - c. One school in one district
 - d. Charter schools
 - e. Private schools
 - f. Other

9. Are the novice teachers:
 - a. Certified
 - b. Uncertified/alternatively certified
 - c. Both

10. How many of each type of school listed below has teachers involved in the program?
 - a. Urban schools _____
 - b. Suburban schools _____
 - c. Rural schools _____
 - d. Private schools _____
 - e. Charter schools _____
 - f. Other _____

11. How is the program funded? (Check all that apply)
 - a. Through a grant
 - b. Through funds contributed from one district
 - c. Through funds contributed by more than one district
 - d. Through a regional educational service center
 - e. Through an institution of higher education
 - f. Through an individual school
 - g. Other _____

12. What grade levels or children's ages are served by the teachers who participate in the program? (Check all that apply)
 - a. Early childhood (3 to 5 years old)
 - b. Elementary (1st to 5th grade)
 - c. Middle school (6th through 8th grade)
 - d. High school (9th to 12th grade)
 - e. College
13. How long do novice teachers participate in the program (in months)?
14. How long can novice teachers participating in the program have been teaching in the classroom as teacher of record (in years)?
15. Have you been provided mentor training?
 - a. Yes
 - b. No (if no, skip to the next section)
16. When were you trained to be a mentor?
17. How many sessions of mentor training did you attend?
18. Do you receive updated mentor training each year that you participate?
19. Check the following in which you were trained as a mentor.
 - a. Stages of concern – Concern Based Adoption Model explains that change is a process that people progress through which includes various stages such as: self, task and impact
 - b. Phases of a novice teacher - anticipation, survival, disillusionment, rejuvenation, reflection, and anticipation again

- c. Coaching strategies – how to guide a discussion regarding problems/concerns of novice teachers
 - d. Formative observation training – what to look for when observing a lesson
 - e. Learning theory – description of the process of learning
 - f. Professional development – strategies used present professional development topics to novice teachers
 - g. Others: _____
20. How effective were the mentor training topics on a scale of 1-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
- a. Stages of concern _____
 - b. Phase of a novice teacher _____
 - c. Coaching strategies _____
 - d. Formative observation training _____
 - e. Learning theory _____
 - f. Professional development _____
 - g. Others: _____

21. How effective was the mentor training you received when you were assisting novice teachers on a scale of 0-5?
- [Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
22. Check all of the venues of training that were utilized for mentor training.
- a. Online
 - b. Face-to-face
 - c. Video
 - d. Other _____
23. How effective were these venues of training listed below on a scale of 0-5?
- [Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
- a. Online _____
 - b. Face-to-face _____
 - c. Video _____
 - d. Other _____
24. As a mentor, are you in contact with other mentors in the induction program.
- a. yes
 - b. no
25. How often do you communicate with other mentors?

Emotional Support

1. Are the novice teachers provided emotional support?
 - a. yes
 - b. If no, skip to question 11
2. Did the program provide specific online correspondence guidelines?
 - a. yes
 - b. no
3. Did you as the mentor introduce yourself to the novice teacher?
 - a. If yes, what information did you include?
 - b. No
4. Did the novice teacher introduce herself or himself?
 - a. If yes, what information did you include?
 - b. No
5. How often were the following types of communication utilized on a scale of 0-5?

0-5?

[Scale 0-5 with 0-not applicable, 1- rarely, 2- occasionally, 3- moderately, 4- often, and 5- constantly.]

 - a. mentor's goals for the duration of the program
 - b. novice teacher's goals for the duration of the program

6. How often did you ask whether or not you could assist them in meeting their professional goals on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- rarely, 2- occasionally, 3- moderately, 4- often, and 5- constantly.]

7. How often did you meet the individual's needs that were shared?

[Scale 0-5 with 0-not applicable, 1- rarely, 2- occasionally, 3- moderately, 4- often, and 5- constantly.]

8. How often are the mentors and novice teachers required to communicate via the following venues?

a. Email _____

b. Phone _____

c. Bulletin board or forum _____

d. Chats _____

e. Face-to-face meetings _____

f. Other: _____

9. How effective is each mode of communication between mentors and novice teachers on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]

a. Email _____

b. Phone _____

c. Bulletin board or forum _____

- d. Chats _____
- e. Face to face meetings _____
- f. Other: _____

10. How often are novice teachers required to communicate with other novice teachers via the following venues?

- a. Email _____
- b. Phone _____
- c. Bulletin board or forum _____
- d. Chats _____
- e. Face to face meetings _____
- Other: _____

11. How effective is each mode of communication between novice teachers and other novice teachers on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]

- a. Email _____
- b. Phone _____
- c. Bulletin board or forum _____
- d. Chats _____
- e. Face to face meetings _____
- f. Other: _____

12. How many novice teachers is each mentor personally responsible for communicating?
13. How effective is the ratio of novice teachers to mentors on a scale of 0-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
14. How effective do you feel as a mentor on a scale of 0-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
15. How effective is the emotional support component on a scale of 0-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
16. How important do you perceive mentoring (emotional support) for the novice teacher on a scale of 1-5?
[Scale 1-5 with 1- not important, 2- somewhat important, 3- moderately important, 4- important, and 5- very important.]

Professional Development

1. Are novice teachers provided professional development opportunities through the induction program with which you are affiliated?
 - a. Yes
 - b. No (if no, skip to question 7)

2. To what extent are the following topics addressed through the professional development component of the program? [Scale 0-5 with 0-not addressed, 1-briefly addressed, 2- casually addressed, 3- addressed, 4- thoroughly addressed, and 5- thoroughly addressed and applied.]
- a. Classroom organization _____
 - b. Classroom management _____
 - c. Lesson design _____
 - d. Culturally responsive teaching strategies _____
 - e. Learning styles _____
 - f. Cooperative learning _____
 - g. Learning centers or stations _____
 - h. Professionalism/Ethics _____
 - i. What to do the first day of school _____
 - j. Vocabulary strategies _____
 - k. Integration of technology within instruction_____
 - l. Documentation _____
 - m. Stress management _____
 - n. Parent communication _____
 - o. Time management _____
 - p. Integrated curriculum _____
 - q. Field trips _____
 - r. Others _____

3. To what extent were the following online strategies used to master professional development topics?
[Scale 0-5 with 0-not applicable, 1-not used, 2-rarely used, 3-occasionally used, 4-used, 5-used often.]
 - a. Teacher directed communication
 - b. Discussion
 - c. Supportive readings
 - d. Examples of application of the professional development topics
 - e. Problem solving vignettes
 - f. Website resources

4. Check all of the venues utilized to provide professional development opportunities for novice teachers.
 - a. Website
 - b. Video tapes
 - c. Video streaming
 - d. TTVN
 - e. Polycom
 - f. Face-to-face meetings
 - g. Other _____

5. How effective are the venues of professional development on a scale of 0-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
- a. Website
 - b. Video tapes
 - c. Video streaming
 - d. TTVN
 - e. Polycom
 - f. Face-to-face meetings
 - g. Other _____
6. How effective do you perceive your novice teachers' professional development on a scale 0-5?
[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
7. How important do you perceive professional development for the novice teacher on a scale of 1-5?
[Scale 1-5 with 1- not important, 2- somewhat important, 3- moderately important, 4- important, and 5- very important.]

Formative Observations

1. Are novice teachers observed by mentors in the induction program in which you are involved?
 - a. Yes
 - b. No, skip to question 12
2. How effective are the formative observations by the mentors listed on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
3. How often do you observe the novice teachers in their classroom teaching a lesson throughout the length of the program?
4. How do you observe the novice teacher in their classroom?
 - a. Audio tape
 - b. Video tape
 - c. Polycom
 - d. Face to face
 - e. Other: _____

5. How effective is the medium through which formative observations are completed on a scale of 0-5?
- [Scale 0-5 with 0-not applicable, 1- ineffective , 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
- a. Audio tape _____
 - b. Video tape _____
 - c. Polycom _____
 - d. Face to face _____
 - e. Other _____
6. Which formative evaluation instrument is used when observing novice teachers?
- a. None
 - b. Created specifically for the program
 - c. District evaluation
 - d. Other _____
7. How often do the novice teachers in the induction program observe the following teachers?
- a. Mentor _____
 - b. Master teacher (any experienced teacher) _____
 - c. Peer (another novice teacher) _____
 - d. Other _____
 - e. None

8. Do novice teachers critique their own instruction?
 - a. Yes
 - b. No, skip to question
9. How do the novice teachers critique their own instruction? (Check all that apply)
 - a. Audio tape
 - b. Video tape
 - c. Other
 - d. None
10. Do novice teacher use a structured questionnaire when observing other teachers?
 - a. Yes
 - b. No
11. How effective do you perceive your novice teachers' formative evaluations on a scale 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]
12. How important do you perceive formative observations for the novice teacher on a scale of 1-5?

[Scale 1-5 with 1- not important, 2- somewhat important, 3- moderately important, 4- important, and 5- very important.]

Reflection

1. Do the novice teachers reflect on their experiences?
 - a. Yes
 - b. No (if no, skip this section)
2. Do novice teachers write their reflections?
 - a. Yes
 - b. No, skip to question 5
3. What types of entries were utilized in a written reflection?
 - a. Structured – answering question supplied by the mentor
 - b. Open ended – the novice teacher determines what to write about
 - c. Combination of structured and open ended
 - d. Other _____
 - e. None
4. How effective is each type of written reflection for the novice teacher on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]

 - a. Structured – answering question supplied by the mentor _____
 - b. Open ended – the novice teacher determines what to write about _____
 - c. Combination of structured and open ended _____
 - d. Other _____

5. What activities were utilized that encouraged novice teachers to reflect?

(Check all that apply.)

- a. Face to face meetings with mentor _____
- b. Face to face meetings with other novice teachers _____
- c. Email to the mentor _____
- d. Posting on bulletin board or forum _____
- e. Chats _____
- f. Other _____

6. How effective are the activities that encourage the novice teachers to reflect on a scale of 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]

- a. Face to face meetings with mentor _____
- b. Face to face meetings with other novice teachers _____
- c. Email to the mentor _____
- d. Posting on bulletin board or forum _____
- e. Chats _____
- f. Other _____

7. How effective do you perceive your novice teachers' opportunities to reflect on a scale 0-5?

[Scale 0-5 with 0-not applicable, 1- ineffective, 2- somewhat effective, 3- moderately effective, 4- effective, and 5- very effective.]

8. How important do you perceive reflection for the novice teacher on a scale of 1-5?

[Scale 1-5 with 1- not important, 2- somewhat important, 3- moderately important, 4- important, and 5- very important.]

Comments

1. What component of induction would you add to support novice teachers or mentors if you had the resources?
2. What unique aspect is included in the program with which you work?
3. What future plans have been formulated for the program with which you work?

Thank you for your time.

VITA

Kimberly K. Livengood
5410 Timbergate Dr.
Corpus Christi, TX 78413

EDUCATION:

Master of Science
Secondary Education - Mathematics and Science
Texas A&M University - Corpus Christi, August, 1995

Bachelor of Science
Arts and Science – Chemistry, Mathematics
Texas Tech University, May, 1990

CERTIFICATES HELD:

Physical Science (Secondary); Texas
Chemistry (Secondary); Texas
Mathematics (Secondary); Texas

EMPLOYMENT HISTORY:

2000 – Present	University Associates. Corpus Christi, TX Research Assistant
1997 – 2001	Texas A&M University-Corpus Christi. Corpus Christi, TX Teacher Induction Program University Mentor, Research Assistant
1992 – 1997	Mary Carroll High School. Corpus Christi, TX Chemistry, Advanced Placement Honors Chemistry II and Physical Science Teacher

PUBLICATIONS:

Livengood, K. & Moon Merchant, V. (2004, March). E-mentoring beginning teachers.
Paper Presented at the 15th International Conference of the Society for
Information Technology and Teacher Education, Atlanta, GA.

PRESENTATIONS:

Livengood, K. & Moon Merchant, V. (2004, March). *E-mentoring beginning teachers*.
Presentation: Society for Information Technology & Teacher Education
International Conference, Atlanta, GA.

Ricard, R., Brendel, J. & Livengood, K. (2003, August). *State of the program*.
Presentation: Gregory-Portland Independent School District, Portland, TX.

Livengood, K.. (2000, February). *Basics of SPSS*. Presentation: Teachers at Texas
A&M Corpus Christi, TX.