



Teacher perceptions of staff development as a vehicle for improving teaching skills
by Cheng-Yu Hsieh

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University

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Abstract:

To verify whether or not Western nations' educational theories and concepts of staff development are applicable in Taiwan, this study was designed to: (1) determine the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving their teaching skills; and, (2) determine if there was a difference in perception of staff development as a vehicle for improving teachers' teaching skills, based on teachers' educational degrees, years of teaching experience, gender, and teaching levels (elementary or junior high).

The population studied was Tainan City's public elementary and junior high school teachers in the school year 1999 to 2000. A total of 358 teachers was randomly selected in this study. Based on stratified sampling, 200 participants were selected from elementary schools and 158 participants were from junior high schools. Analyses were conducted using descriptive statistics (mean scores, frequency; and percentage) and two-way ANOVA (educational degrees and teaching levels; educational degrees and years of teaching experience; educational degrees and gender; teaching levels and years of teaching experience; teaching levels and gender; and years of teaching experience and gender). The level of significance was set at $\alpha = .05$.

Findings indicated Tainan City teachers agreed staff development is a vehicle for improving teaching skills. Teachers had lower agreement rates (under 50%) on the principal's role as a staff development presenter, teacher's participation in leading staff development, and on instructional evaluation following staff development. All interaction hypotheses were retained. Significant differences were found between elementary and junior high school teachers and between male and female teachers.

Based upon the results of this study, the following recommendations are made: (1) the Central Office needs to provide staff development programs for principals in order to improve instructional leadership; (2) the Central Office needs to minimize class size and use short periods of presentation to encourage teachers to serve as staff development program presenters; and (3) the Central Office needs to use non threatening evaluation techniques for teachers.

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IMPROVING TEACHING SKILLS

By

Cheng-Yu Hsieh

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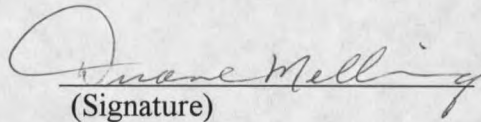
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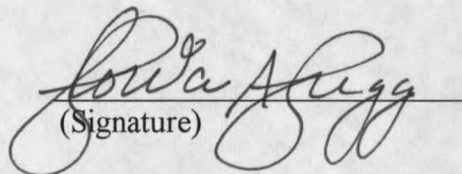
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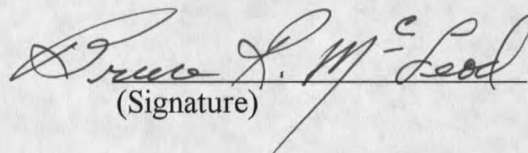
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ABSTRACT

To verify whether or not Western nations' educational theories and concepts of staff development are applicable in Taiwan, this study was designed to: (1) determine the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving their teaching skills; and, (2) determine if there was a difference in perception of staff development as a vehicle for improving teachers' teaching skills, based on teachers' educational degrees, years of teaching experience, gender, and teaching levels (elementary or junior high).

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Findings indicated Tainan City teachers agreed staff development is a vehicle for improving teaching skills. Teachers had lower agreement rates (under 50%) on the principal's role as a staff development presenter, teacher's participation in leading staff development, and on instructional evaluation following staff development. All interaction hypotheses were retained. Significant differences were found between elementary and junior high school teachers and between male and female teachers.

Based upon the results of this study, the following recommendations are made: (1) the Central Office needs to provide staff development programs for principals in order to improve instructional leadership; (2) the Central Office needs to minimize class size and use short periods of presentation to encourage teachers to serve as staff development program presenters; and (3) the Central Office needs to use non threatening evaluation techniques for teachers.

CHAPTER 1

INTRODUCTION AND REVIEW OF LITERATURE

The purpose of this chapter is to introduce this study. There are six sections in this chapter: the background of the study; the problem statement; the significance of the study; the definition of terms; the questions to be answered; and the review of literature.

The Background of the Study

Educational reform is the target and mission of most nations in this current age and into the next century. Staff development is one of the key elements if educators want to have successful educational reform. During this age of continuing advancement of technology, changing society, and knowledge exploration, most countries have tried to improve their standing in the global market by improving their quality of education. As Zao (1996) stated, educational reform is the job that each nation has to do, and it is also one of the key aspects of a nation remaining competitive in the global market.

As cited in Tsai (1998), Lin indicated that no matter how educational reform is constructed and planned, it should be based on high quality teaching if educators want to ensure successful educational reform. Johnson and Immerwahr (1994) also stated that good teachers are the most important element schools need to do a good job. Therefore, the fundamental element that decides the success or failure of an educational reform is teachers' teaching performance. To improve the quality of teachers' teaching performance and schooling, in recent years the Taiwan government has proposed several

statements, policies, regulations, and projects for staff development programs. For example, in 1995, the Taiwan Department of Education stated that Taiwan should strengthen the function of in-service education and improve teachers' teaching skills. In 1996, the Educational Reform Report suggested that to improve teachers' professional quality, staff development should be one of all teachers' duties. In 1996, the Taiwan Department of Education mandated that teachers, whose teaching levels are from kindergarten to senior high schools, must participate in staff development activities of at least 18 hours each year or 90 hours within 5 years. The record of participation in staff development programs will be one of the references for their certificate renewal. In addition, to encourage teachers' participation in learning activities, the Taiwan Department of Education has established several programs that offer master's degrees and have tuition supplements. All of the above projects, policies, and incentives are to increase teachers' professional knowledge, teaching skills, and working enthusiasm.

According to the literature, continuing professional development is an inevitable vehicle for improving teachers' quality, especially in today's fast-paced society. In addition, teachers' in-service education can continually improve their content knowledge and teaching methodologies plus understanding of students' learning psychology, styles, and differences (Darling-Hammond, 1998; Ferguson, 1991). French (1997) stated that high quality staff development not only enables teachers to move to the next level of expertise and ability, but also to raise their understanding of education and strengthen their willingness to make changes that will improve students' learning outcomes. As Lin (1991) indicated, excellent teachers should be cultivated through well-planned and

thorough teacher education. A well-planned and thorough teacher education program should be continued to the end of one's teaching career. Planning for and implementing effective staff development is one of the important elements of ongoing teacher education. Only by doing so can we really improve teaching and educational quality. Wu (1995) pointed out that educators not only need to accept rigorous pre-service education, but also need to participate in well-planned and systematic in-service learning activities to survive and succeed in today's educational setting. In addition, Chen (1997) stated that teachers' quality is the most important element for education. If we want successful education, teachers' staff development is necessary.

According to some studies, Taiwan teachers believe the major purpose of participating in staff development is to improve teaching skills and gain professional content knowledge. In the past two decades, some studies were conducted in Taiwan to examine teachers' perceptions of the major purpose of participating in staff development programs. For example, Chen & Lee (1987) selected 802 elementary school teachers from the southern part of Taiwan in their study. They found that most teachers (70%) believed that the major purpose of participating in staff development was to improve their teaching skills and gain more content knowledge. Liu (1987) examined 824 junior high school teachers' perceptions of the main purpose of staff development. He found that most teachers (65.58%) believed that gaining professional knowledge was the main purpose of participating in staff development. In addition, Win (1988) examined 2,859 Northern Taiwan elementary school teachers' perceptions of staff development. Again, he found that most teachers (64.6%) believed the major purpose of joining staff

development was to gain professional knowledge and improve teaching skills. After examining 1,999 elementary school teachers, Tainan City Department of Education (1994) found that most of the participants (69.1%) believed that the major purpose of joining staff development was to improve teaching skills and gain professional knowledge.

However, even though some studies conducted in Taiwan that have examined teachers needs in staff development, the motivators that attracted them to participate in staff development, and the format they preferred, no studies in Taiwan have examined whether teachers perceived staff development as useful for improving their teaching skills. In addition, there is no staff development model acceptable to teachers in Taiwan that has been approved. Therefore, this study was conducted to examine and verify if Western nations' literature related to teacher perceptions of staff development as a vehicle for improving teachers' teaching skills is applicable in Taiwan.

Problem Statement

To verify whether or not Western nations' educational theories and concepts of staff development are applicable in Taiwan, the problem of this study was to:

- (1) determine the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving their teaching skills;
and
- (2) determine if there was a difference in perception of staff development as a vehicle for improving teachers' teaching skills based on teachers' educational degrees, teachers'

years of teaching experience, teachers' gender, and whether the teacher is an elementary or junior high school teacher.

The Significance of the Study

Most literature found that staff development programs for teachers can improve their teaching skills, professional knowledge, and working enthusiasm. Most nations also require teachers to participate in staff development program. However, many studies have stated that staff development programs were not as successful as educators expected. According to Tsai (1998), the results and effectiveness of staff development are not as good as anticipated. The major reasons are failures in both design and implementation of staff development programs. As Chen (1997) and Tsai (1998) indicated, currently Taiwan's staff development programs are designed by administrators and external experts such as college professors. These program designers usually only apply and consider the Taiwan Department of Education's policies and regulations to design and construct professional development programs. In other words, teachers' real needs, concerns, and perceptions of staff development are seldom examined. Therefore, current staff development programs that are held in Taiwan are unsuccessful (Chen, 1997). Teachers usually think that staff development is only a one-shot program and have no interest in applying what they learned. Staff development becomes only a routine activity that is mandated by the central office or other administrative offices.

Therefore, educators pointed out that establishing multidimensional in-service education for teachers is an urgent consideration and requirement if teachers really want

to learn and be of benefit to their students. To deal with this situation, this study examined whether Western nations' principles, theories, models, and literatures of staff development programs are applicable in Taiwan's educational setting. Through Western nations' principles, theories, models, and literatures of staff development programs, the researcher introduced the concepts of staff development that could be successfully applied in Taiwan. Therefore, the major significance of this study was to verify whether Tainan City teachers' perceptions of staff development as a vehicle for improving teaching skills are congruent with the literature based theories of staff development that have been established in Western nations. This study was conducted in order to determine if these theories can guide staff development programs in Taiwan.

Another aspect of this study was to examine the similarities and differences of perceptions of staff development as a vehicle for improving teaching skills among teachers who have different personal backgrounds. Since staff development is an educational innovation, it cannot be reached in one day. It must involve many factors. One important factor is teachers' involvement in action and their perceptions and attitudes toward this educational reform. Hyde & Pink (1992) believed that when educators implement in-service education, they should not only consider teachers' technology skills, but should also think about their basic perceptions, concepts, and values. Fullan and Stiegelbauer (1991) pointed out that the mental health and attitudes of teachers are crucial for implementing successful educational change. They also indicated that most of the time, human's basic perceptions, concepts, and values are more influential than their professional knowledge. Wideen (1987) believed that the teacher is

the center of educational reform. Each educational reform must begin from the teachers' viewpoints and perceptions.

According to Hall and Hord (1987), for change to be successful, the perceptions of teachers must be understood by themselves and by the change facilitators. As Ellis, Cooley, and Thompson (1988) stated, perceptions of teachers are important. "Such perceptions are one of the many facets that must be examined if staff development is to make a difference and have a positive impact on educational improvement" (p. 1).

Similarly, Joyce and Showers (1995) stated that the design and implementation of effective staff development are influenced by the beliefs held by the people who are involved in the programs. Sergiovanni (1995) also suggested that if teachers do not have positive perceptions and clear answers to an educational innovation, they will resist the change. In other words, if teachers have positive perceptions that staff development is one of the vehicles to improve their teaching skills, they will be more enthusiastic and spend more resources and time to implement staff development activities and apply what they learned in their classrooms. Eventually, staff development programs can really improve educational outcomes. Therefore, another aspect of this study was to examine the perceptions of teachers with differing personal characteristics in order to fit their varied staff development needs and establish profiles for future use in Taiwan's staff development.

By examining the preferred staff development programs established in Western nations' literature on staff development, and by comparing different teachers' perceptions of staff development, this researcher attempted to increase the knowledge relating to

Taiwan's teacher staff development. The results of this study may assist Taiwan's staff development program planners to design effective and successful staff development programs for teachers. If teachers' professional growth is achieved, school improvement may also be achieved.

Definition of Terms

Staff development program: any activity or process that emphasizes teachers' self-realization, self-growth, self-improvement, or organizational growth, and organizational improvement. Staff development programs include those activities aimed at the improvement and growth of abilities, attitudes, skills, and knowledge of school members (Castetter, 1996). In this study, in-service education, professional development, and staff development will be used interchangeably.

Applicable staff development: More than 50% of teachers agree or strongly agree that the characteristic of staff development can improve teaching skills.

Teachers' educational degree: Tainan City's public elementary and junior high school teachers' current educational degree. This study will divide teachers into three groups: those teachers who have at least an associate degree but do not have a bachelor's degree, those who have a bachelor's degree but do not have a master's degree, and those who have a master's degree.

Teachers' perceptions of staff development: Tainan City's elementary and junior high school teachers' attitudes, beliefs, and experiences toward staff development practices.

Teaching levels: the level at which teachers work in junior high school (grades seven to nine) or elementary school (grades one to six).

Teaching experience: teacher's number of years of teaching. This study divided teaching experience into four categories: from 2 to 5 years; from 6 to 10 years; from 11 to 20 years; and from 21 years and beyond. According to common belief in Taiwan's educational setting, teachers who have taught from two to five years are still new in their teaching career. Teachers who have taught from 6 to 10 years are at the second stage of the teaching career. Teachers who have taught from 11 to 20 years are at the third stage of the teaching career. Finally, teachers who have taught 21 years and beyond are at the fourth stage of the teaching career.

Questions to be Answered

The study attempted to answer the following questions:

1. Was there a favorable perception of staff development as a vehicle for improving teaching skills among Tainan City's public elementary and junior high school teachers?
2. Did teachers' educational degrees and teachers' teaching levels interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?
 - a. Was there a significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree)?

- b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school?
3. Did teachers' educational degrees and teachers' teaching experience interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?
 - a. Was there a significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree)?
 - b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers who have taught from 2 to 5 years, teachers who have taught for 6 to 10 years, teachers who have taught from 11 to 20 years, and teachers who have taught 21 years and beyond?
4. Did teachers' educational degrees and teachers' gender interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?
 - a. Was there a significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelors degree, and masters degree)?
 - b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between male and female teachers?
5. Did teachers' teaching levels and teachers' teaching experience interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?

- a. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school?
 - b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers who have taught from 2 to 5 years, teachers who have taught for 6 to 10 years, teachers who have taught from 11 to 20 years, and teachers who have taught 21 years and beyond?
6. Did teachers' teaching levels and teachers' gender interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?
- a. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school?
 - b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between male and female teachers?
7. Did teachers' teaching experience and teachers' gender interact on teachers' perceptions of staff development as a vehicle for improving teaching skills?
- a. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers who have taught from 2 to 5 years, teachers who have taught for 6 to 10 years, teachers who have taught from 11 to 20 years, and teachers who have taught 21 years and beyond?
 - b. Was there a significant difference in perceptions of staff development as a vehicle for improving teaching skills between male and female teachers?

8. What was the most important characteristic in the planning stage of staff development programs?
9. What was the second second most important characteristic in the planning stage of staff development programs?
10. What was the most important characteristic in the implementation stage of staff development programs?
11. What was the second most important characteristic in the implementation stage of staff development programs?
12. What was the most important characteristic in support of staff development programs?
13. What was the second most important characteristic in support of staff development programs?
14. What was the most important characteristic in the follow-up stage of staff development programs?
15. What was the second most important characteristic in the follow-up stage of staff development programs?

The Review of Literature

Definition of Staff Development

This section compares researchers' definitions of staff development and discusses the definitions from two perspectives. One of them is individual growth and improvement; the other is organizational growth and improvement.

Staff development, one of the key factors in today's educational change, has an important role in the operation of the educational system. Since the establishment of the

National Staff Development Council (NSDC) in the late 1970s, a growing number of educators have strongly agreed with the concept of "continuing professional growth" (Hyde & Pink, 1992, p. 3) that focused on how developmental processes will supplement teachers' inadequacies and benefit both teachers and students. Presently, there is no shared definition of the term staff development in the educational field. Some educators defined it as in-service education, while others saw it as continuing education. Still others saw staff development as instructional improvement. And some have regarded it as professional development. However, in most literature that mentioned staff development, it was defined from the perspective of teachers' self-improvement and self-growth.

Harris & Bessent (1969, p. 2) distinguished in-service education from pre-service education. They defined in-service education as "planned activities for the instructional improvement of professional staff members." Sparks (1983) defined staff development as those training activities that assist teachers to improve their teaching skills. Similarly, Sparks and Loucks-Horsley (1989) defined staff development as "those processes that improve the job related knowledge, skills, or attitudes of school employees" (p. 41). In addition, Brodinsky and Keough (1989) defined staff development as "any activity on the part of the individual, professional stature and performance on the job" (p. 11). Fullan and Stiegelbauer (1991, p. 326) stated that staff development is "the sum total of formal and informal learning experiences throughout one's career from pre-service teacher education to retirement."

On the other hand, some literature defined staff development from the perspective of organizational improvement. For example, Joyce et al (1976, p. 7) defined in-service education from both individual and organizational perspectives. They believed that staff development included both "formal and informal provisions for the improvement of educators as people, educated persons, and professionals, as well as in terms of the competence to carry out their assigned roles." In addition, Griffin (1983, p. 2) defined staff development as "any systematic attempt to alter the professional practices, beliefs, and understandings of school persons toward an articulated end." In other words, staff development programs are designed to bring about change. These changes are: (a) a change in teachers' classroom practices; (b) a change in teachers' attitudes and beliefs; (c) a change in students' learning outcomes; and, (d) a change in a school's long-term mission (Guskey, 1986). Both Joyce's and Griffin's definitions of staff development placed more attention on organizational improvement than on individual growth and improvement. Therefore, educators defined staff development from both individual and organizational perspectives and had differing interpretations.

Interestingly, in the Taiwan Department of Education's (1996) study, most teachers defined staff development as any activity that assists teaching and implementation of job-related responsibilities. It could be held at any place at any time. Nevertheless, most administrators and scholars defined it as a mandated teaching duty that assists teaching and implementation of job-related responsibilities. It could be held only at educational organizations. Therefore, there are still some differences in

interpretation and implementation existing among most educators in Taiwan as well as in the Western literature.

The Purpose of Staff Development

This section reviews scholars' statements and findings to indicate the major purpose of staff development. Generally, researchers believed that the major purpose of staff development was for the improvement of teaching skills and students' learning outcomes.

According to Levine (1989), adults, like children, have to continue to grow and change throughout their lifetime. Marien (1983) believed that the most important learning needs are not among children, but among adults-- especially our educational, political, intellectual, scientific, corporate, and religious leaders-- the decision-makers who will be shaping the changing society over the next century. As Darling-Hammond (1998) indicated, today's schools face many challenges. In response to an increasingly complicated society and a fast-paced, technology-based economy, schools are being asked to educate the most diverse student body to higher academic standards than ever before. Under this situation and environment, achieving high levels of student understanding and academic outcomes requires skillful teaching.

Ellis, Cooley, and Thompson (1988, p. 1) reported that a well planned and properly implemented staff development program can "result in educational improvement." Effective staff development assists educators in keeping pace with the demands of a changing society, training new teachers and enabling them to learn while keeping them aware of changing trends, knowledge, and new teaching methodologies.

French (1997, P.38) also stated that professional development can “assist teachers to develop students' abilities and raise their achievement and test scores”. In addition, he believed that high quality professional development enables teachers to move to the next level of expertise and ability. King (1987) also found that teachers strongly agreed that professional development programs could improve teachers' teaching skills.

According to Sparks (1992), significant school improvement efforts are closely linked to quality staff development programs. Teachers' classroom performance is the key indicator educators use to measure whether the staff development program is effective. In her study, Criss (1990) found that teachers perceived staff development as a vehicle for school improvement. As French (1997, p. 38) stated, today's world and students are more complicated than before and teachers' skills and knowledge are “the most crucial factors driving student achievement.” Therefore, helping teachers upgrade their teaching skills and knowledge will provide additional benefits to both students and teachers, as well as refine teachers' commitment and excitement about their profession. Several studies have supported this viewpoint. For example, in Guskey's (1986) study, there were 52 teachers who participated in a staff development program named Mastery Learning. Thirty-four of them used the procedures in their classes during the first school semester following the training and gained evidence of improved learning among their students. These teachers found that under the application of the staff development program, their students gained higher scores on course examinations and earned higher course grades than students in their other class sections where Mastery Learning procedures were not employed. Guskey then stated that the three major outcomes of

staff development are change in the classroom practices of teachers, change in their beliefs and attitudes, and change in the learning outcomes of students. In their study, Good, Grouws, & Ebmeier (1983) found that staff development program increased teachers' application of active teaching behaviors and improved students' math achievement. Gall, Fielding, Schalock, Charters, & Wilczynski (1984) also found that teachers who received staff development programs used particular instructional methods more than those who did not receive staff development programs. The students of the trained teachers had higher scores on achievement tests than those students of non-trained teachers.

To emphasize the impact of staff development on beginning teachers, Huling-Austine (1990, p. 539) stated that the purposes of staff development are the following:

1. To improve teaching performance;
2. To increase the retention of promising beginning teachers;
3. To promote the personal well-being of beginning teachers by improving teachers' attitudes toward themselves and the profession;
4. To satisfy mandated requirement related to in-service education and certification; and
5. To transmit the culture of the system to beginning teachers.

Andrew and Schwab (1995) illustrated the preceding statements. They found that more than 300 schools of education in the United States had created programs that extend beyond the traditional four-year bachelor's degree program, providing both education and subject-matter coursework that was integrated with clinical training in school. The graduates from these extended programs were more satisfied with their preparation, and their colleagues, principals, and cooperating teachers viewed them as better prepared than graduates of four-year programs. Extended program graduates were as effective with

students as were much more experienced teachers and were much more likely to enter and stay in teaching than their peers in a traditional four-year program.

In an analysis of 900 Texas school districts, Ferguson (1991) found that teachers' expertise was indicated by scores on a licensing examination, the completion of master's degree, and experience. He then stated that teachers' in-service education can continually improve their content knowledge and teaching methodologies plus help teachers understand students' learning psychology and differences.

In order to get a picture of staff development in the Northwestern United States, Northwest Regional Educational Laboratory (NWREL, 1999) conducted a survey among teachers who were teaching from kindergarten to grade two to examine their perceptions of staff development. In this study, participants were very positive about the benefits of well-planned staff development, reporting that successful staff development resulted in higher morale, new insights that improved their classroom practices, better teamwork and commitment of staff, and increased students' learning outcomes. Based on comments as well as the high overall rating of the importance of professional development, the participants placed a high value on staff development (4.63 out of the highest possible score of five). They believed that staff development could be a powerful force in making positive changes in classroom practice.

In addition, according to Missouri Professional Development Guidelines for Student Success (1997), the Missouri State Department of Elementary and Secondary Education (MSDESE) believed that the major purpose of professional development is to support teachers "in their continual efforts to improve instruction so that each student

may achieve at higher levels in the public schools” (p. 3). Therefore, the major purpose of staff development should be the improvement of teachers’ instruction and then the improvement of students’ learning.

Characteristics of Effective Staff Development

Effective staff development programs not only enhance teachers’ learning, but also maintain their interests and encourage their application of learning. This section reviews scholars and researchers’ findings and studies to state the elements and characteristics of an effective staff development program that will improve teachers’ teaching skills. The elements and characteristics of effective staff development programs discussed in this section were the framework for making the instrument of this study. There are five areas in this section: the failure of staff development; the planning stage of staff development; the implementation stage of staff development; the supporting of staff development; and the follow-up activities of staff development.

The Failure of Staff Development. As Adornetto (1999) stated in her dissertation, “Sometimes the best way to better understand what something is, is to closely examine what it is not” (p. 40). Therefore, after the review of staff development programs, Fullan and Stiegelbauer (1991, p. 316) summarized the following reasons for failure of staff development programs:

1. One-shot workshops are widespread but are ineffective.
2. Topics are frequently selected by people other than those for whom the in-service is intended.
3. Follow-up support for ideas and practices introduced in in-service programs occurs in only a very small minority of cases.
4. Follow-up evaluation occurs infrequently.

5. In-service programs rarely address the individual needs and concerns.
6. The majority of programs involve teachers from many different schools and/or school districts, but there is no recognition of the differential impact of positive and negative factors within the systems to which they must return.
7. There is a profound lack of any conceptual basis in the planning and implementing of in-service programs that would ensure their effectiveness.

In his study of urban educational improvement projects, Pink (1989, p. 21) concluded that there are 12 factors that functioned as barriers to an effective staff development program:

1. An inadequate theory of implementation, resulting in too little time for teachers and school leaders to plan for and learn new skills and practices;
2. District tendencies toward faddism and quick-fix solutions;
3. Lack of sustained central office support and follow-through;
4. Understanding the project, or trying to do too much with too little support;
5. Attempting to manage the projects from the central office instead of developing school leadership and capacity;
6. Lack of technical assistance and other forms of intensive staff development;
7. Lack of awareness of the limitations of teacher and school administrator knowledge about how to implement the project;
8. The turnover of teachers in each school;
9. Too many competing demands or overload;
10. Failure to address the incompatibility between project requirements and existing organizational policies and structure;
11. Failure to understand and take into account site-specific differences among schools; and
12. Failure to clarify and negotiate the role relationships and partnerships involving the district and the local university.

In addition, Newsome (1997) defined the reasons for the failure of staff development as: the failure to address the real needs of students and teachers; lack of support for implementation; and failure to include teachers in the planning process. To deal with those problems that have negative impacts on staff development programs, many educators proposed principles, standards, and concepts to improve the designation

and implementation of staff development programs. The following sections describe the elements, principles, standards, and concepts of effective staff development programs organized around the areas of planning, implementation, supporting, and follow-up activities.

The Planning of Staff Development. According to the literature, a change process should: consider participants' concerns, needs, and perceptions; involve participants' contributions; and create ownership. As Adornetto (1999) stated, teacher ownership and commitment to improved professional development activities are promoted when teachers have input into the change. In her study, Beller (1998) interviewed and observed 12 middle school teachers and found that teachers enjoyed being involved in all aspects of staff development from planning to implementation. Several studies also found that individual teacher needs were the most important factor in predicting teacher attitudes toward staff development, and teachers themselves should be involved in the planning, selecting, implementation, and decision-making process (Fish, 1996; Lucas, 1998; Nuttall, 1996; Watanabe, 1998).

As Little (1993) indicated, staff development is grounded in the questions and concerns of those who work closely with children. Staff development should be "intricately interwoven with the daily life of the classroom" (p. 137). Speck (1996) believed that increasing student learning is the goal of staff development. Only teachers who work with students closely can address students' needs and concerns, teachers' needs and concerns, and then reach the goal of staff development programs. The Office of Educational Research and Improvement (OERI, 1997) stated that high quality

professional development is planned collaboratively by those who will participate in and facilitate that development. Sharing decision-making allows teachers to share and contribute their knowledge and resources to the professional development activities. Therefore, teachers' involvement is no doubt important to effective staff development programs.

According to Sparks and Hirsh (1997, p. 4), systems thinking is one of the influential ideas that produce effective staff development programs and "alter the shape of schools in the United States." Systems thinking, according to Senge (1990), is "a discipline for seeing wholes" (p. 69). From systems thinkers' viewpoint, changes or innovations are a part of the whole system. One part influences the other parts of this system in complicated ways. In addition, change within the system is continuous. The change or innovation that occurs today will continue to influence the system in the future.

This idea has two implications for effective staff development. The first is that effective staff development programs help teachers install systems thinking at all levels within the school. Thus, personnel can apply and carry over what they learn to the next stage. The second is that effective staff development programs consider the limitations of individuals and organization in advance.

According to Darling-Hammond & McLaughlin (1995), staff development must be tied to long range plans for district and school improvement and connect to other aspects of school change. Change theory also suggests that a successful change process takes a long time to complete. Staff development missions, policies, and goals should be part of an ongoing improvement effort that is locally constructed in response to specific

teacher and learner needs (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995). In addition, according to the Mississippi State Department of Education (MSDE, 1985), effective staff development programs should prepare teachers to carry out their job responsibilities. Wood and Thompson (1993) indicated that school improvement goals should serve as the focus for staff development. In addition, Newsome (1997) pointed out that the goals of effective staff development programs should be aligned with the goals of the school. If the goals of the school are to meet the students' diverse needs, then staff development programs must prepare teachers to meet these diverse needs. After reviewing the literature, Adornetto (1999) believed that professional development not only needs to support the district's and school's growth, but also support the individual's growth.

The OERI (1997) stated that high quality staff development should focus on individual, collegial, and organizational improvement and growth. The NSDC (1994) also suggested that effective staff development programs should be "aligned with the school's and the district's strategic plan, and provide a framework for integrating innovations and relating those innovations to the mission of the organization" (p. 1). In addition, in Missouri Professional Development Guidelines for Student Success, the MSDESE (1997) recommended that in implementing the staff development program, one should consider the following two questions in advance: (1) "Does the professional development program relate to the district's comprehensive school improvement plan?"; and, (2) "Is each professional development activity consistent with the vision and the goals of the district's professional development program?" (p. 3)

Therefore, system thinkers should create staff development programs that are congruent with the district's, school's, and teacher's individual goals. System thinkers should help teachers prepare to carry out their job responsibilities. In addition, system thinkers should consider staff development participants' schedule, transportation, food, and living location in advance in order to attract participants and to maintain participants' positive attitudes toward staff development programs.

In summary, in the planning stage, effective staff development programs should:

- a. Involve teacher representatives in the planning or decision-making process;
- b. Prepare teachers for implementing the best practices related in carrying out teaching responsibilities;
- c. Be congruent with the district's educational goals;
- d. Be congruent with the school's educational goals;
- e. Be congruent with teachers' individual goals; and
- f. Consider the limitations in advance.

The Implementation of Staff Development. Sparks and Hirsh (1997, p. 4)

recommended another principle that produces effective staff development programs.

This idea is a constructivist approach.

Constructivists believe that learners create their own knowledge by learning from the environment. According to Brooks and Brooks (1993), constructivist classrooms encourage student autonomy and initiative; use raw data and primary sources; allow students to drive the class; shift instructional strategies; encourage students to learn from dialogue with teachers and students; seek elaboration of students' initial responses;

provide time for students to build their initial hypotheses and encourage discussion; and nurture students' natural curiosity. Therefore, the presenters in staff development programs or workshops have to understand these principles and then give learners autonomy to create their own knowledge and understanding. In this teaching approach, teachers and other school personnel will "collaborate with peers, researchers, and their own students to make sense of the teaching/learning process in their own context" (p. 11).

As Darling-Hammond (1994) stated, beginning teachers get a more coherent learning experience when they are organized in teams with faculty and with one another. Senior teachers deepen their knowledge by serving as mentors, adjunct faculty, co-researchers, and teacher leaders. This kind of staff development can help create a link between theory and practice, while creating more professional roles for teachers and constructing knowledge that is more useful for both practice and ongoing theory building. Thus, activities such as action research, dialogue with peers, peer coaching, mentoring, and reflective practice should be used in effective staff development programs.

In addition to stating the concepts of a constructivist approach, Stallings (1989) found the following conditions could change teachers' classroom behavior and allow them to continue to apply their learning from staff development programs:

1. They become aware of a need for improvement through their analysis of their own observation profile;
2. They make a written commitment to try new ideas in their classroom the next day;
3. They modify the workshop ideas to work in their classroom and school;
4. They try the ideas and evaluate the effect;
5. They observe in each other's classrooms and analyze their own data;
6. They report their success or failure to their group;
7. They discuss problems and solutions regarding individual students and/or teaching subject matter;

8. They need a wide variety of approaches; modeling, simulations, observations, critiquing video tapes, presenting at professional meetings; and
9. They learn in their own way to set new goals for professional growth (p. 3).

In her study, Paciulan (1996) found that teachers' prime interest in implementing an innovation was to collaborate with peers to gain knowledge of the innovation. As learners, teachers sought peer support and peer assistance, and found that collegial interaction reduced their sense of isolation. In the National Staff Development Council's (1994) standards for staff development, it stated that effective staff development should "require staff members to learn and apply collaborative skills and work collegially, and require knowledge and use of the stages of group development to build effective, productive, and collegial teams" (p. 1). In addition, the Office of Educational Research and Improvement (1997) indicated that opportunities to engage in reflective study of teaching practices through dialogue, collaborative problem-solving, and peer mentoring are considered effective in staff development programs.

As Rogers (1993) stated, effective staff development programs should allow the school to determine its own activities and schedules. According to Speck (1996), "the school is the unit of change"; "the school, not the district, should be the primary focus of improved practice and professional development" (p. 35). To allow each school to have its own uniqueness of development, staff development programs should allow each school to develop its own staff development activities and schedules.

Wood and Thompson (1993) stated that "the largest unit one can change in education is the school: districts improve school-by-school" (p. 53). Goodman (1995)

examined 150 New York Chapter I teachers' perceptions of in-service training needs. The finding revealed that teachers preferred receiving staff development activities within their building in a half-day session. Teachers also hoped to decide their own professional development activities within the school level.

According to Sirotnik and Clark (1988), in order for the goals of staff development programs to be actively pursued, staff development programs should be developed at the school itself rather than imposed by central office personnel. Each school understands specifically what it needs to be successful. If the staff development programs are designed by the school itself, then the implementation of the staff development programs are more likely to occur. Therefore, school-based staff development programs are one of the effective elements for implementing staff development programs.

Teacher learners are adult learners. Therefore, the NSDC (1994) pointed out that effective staff development programs should use a variety of approaches to "accomplish the goals of improving instruction and student success" (p. 1). Wood and Thompson (1993) also indicated that knowledge about adult learners should be the basis of conducting staff development programs. In addition, they proposed the following characteristics for adult learning:

1. Adults will commit to learn when the goals and objectives are considered realistic and important to them. Therefore, staff development should address areas that educators believe are important and have immediate application in the real world;
2. Adults will learn, retain, and use what they perceive is relevant to their personal and professional needs. Therefore, staff development must enable teachers and administrators to see the relationship between what they are learning and their day-to-day activities and problems;

3. Adult learning is ego involved; asking an educator to learn and implement new professional behaviors may promote a more or less positive view of self. Therefore, staff development should be structured to provide support from peers;
4. Adults need to see the results of their efforts and have feedback on how well they are doing. Therefore, in-service should provide opportunities for educators to try out what they are learning and receive structured helpful feedback;
5. Adults are much more concrete in the way they operate than formerly thought. Therefore, educators should have an opportunity for directed, concrete experiences in which they apply what they are learning in a real or simulated work setting;
6. Adults who participate in small groups are more likely to move their learning beyond understanding to application, analysis, synthesis, and evaluation. Therefore, staff development ought to include learning in small groups in which teachers and administrators have an opportunity to share, reflect, and generalize from their learning experiences;
7. Adults come to learning with a wide range of previous experiences, knowledge, self-direction, interests, and competencies. Therefore, staff development must accommodate this diversity in terms of needs, knowledge, and readiness to learn;
8. Because the transfer of learning is not automatic for adults, it must be planned for and facilitated. Therefore, coaching and other kinds of follow-up support are needed to help educators transfer learning into daily practice (p. 55).

Knowles (1980) believed that adults' experiences are rich resources for learning.

Adults learn more effectively through experiential techniques of education such as real life tasks or problems. Therefore, adult education programs should be organized around real life applications and sequenced to their prior experiences.

According to Sparks and Hirsh (1997), result-driven education judges the success of staff development programs not by how many hours of workshops or courses teachers have participated in, but by what they actually have known and how they apply what they learned from the staff development programs. The results may cause teachers' behavior

to change in the classroom and may benefit students and the school. In other words, effective staff development programs should focus on whether they changed teachers' "instructional behavior in a way that benefits students, not focus on how many teachers and administrators attend the staff development programs" (p. 5).

The NSDC (1994) provided the following standards for effective result-driven staff development:

1. Is based on knowledge about human learning and development;
2. Increases administrators' and teachers' understanding of how to provide school environments and instruction are responsive to the developmental needs of students;
3. Facilitates the development and implementation of school and classroom-based management which maximize student learning;
4. Addresses diversity by providing awareness and training related to the knowledge, skills, and behaviors needed to ensure that an equitable and quality education is provided to all students; and
5. Prepares educators to demonstrate high expectations for student learning (p. 1-2).

From the perspectives of result-driven in-service education, the MSDESE (1997) suggested that educators consider the following three questions in advance:

1. Does each professional development offering enhance the participants' repertoire of skills and content knowledge;
2. Does each professional development offering lead to improvement of teaching practice; and
3. Does each professional development offering eventually helps students become better and more efficient learners? (p. 3).

According to suggestions of the American Federation of Teachers (AFT, 1995), the principles for creating result-driven effective staff development should (1) "ensure depth of content knowledge"; (2) "provide a strong foundation in pedagogy of particular

discipline”; and (3) “provide more general knowledge about the teaching and learning processes” (p. 4). In addition, in a study of 24 randomly selected teachers, Jantzen (1996) found that teachers indicated that training related to their specific discipline has a greater influence on classroom practice than does generic material.

Therefore, result-driven staff development programs should focus on enhancing teachers’ content knowledge, help teachers develop the strategies to present specific disciplines, and help teachers develop the strategies to create and maintain an appropriate, orderly teaching and learning environment.

According to Galbraith (1990), successful adult education for educators and for the learner depends on well-planned and well-implemented educational programs. Being technically proficient in the content area of instruction is important. This skill establishes trust between learners and staff development program presenters. Knox (1980) pointed out that an adult educator should possess specific knowledge of content, knowledge of learners, and knowledge of methods in order to maintain participants’ interest. Apps (1981) indicated that adult learning program presenters should have the ability to make the subject interesting. In addition, Draves (1984) and Galbraith (1990) stated that adult instructors should have a deep understanding of the content area.

As Brookfield (1986) stated, adult instructors should have the ability to assist adults in “how to change our perspectives, shift our paradigms, and in replacing one way of interpreting the world by another” (p. 19). According to Galbraith (1990), educational climate is important to the success of adult continuing education. In the educational climate, psychological climate is a vital aspect. Adult instructors should establish a

supportive, friendly, and informal atmosphere. To do so, using clear and practical terms to describe the content is important and necessary.

Guskey (1986) indicated that effective staff development programs must be presented in a "clear and explicit" way" (p. 9). The content of staff development programs should be explained in "concrete, rather than abstract or theoretical terms" (p. 9). Additionally, Galbraith, Sisco, and Guglielmino (1997) recommended that in the hiring of an adult instructor, his/her knowledge of how adults learn, of the subject matter, climate-setting, and verbal ability be considered.

In summary, in the implementation stage, effective staff development programs should:

- a. Be conducted in a supportive and collaborative climate;
- b. Focus on constructivist learning methods;
- c. Include a variety of activities designed for adult learners;
- d. Focus on enhancing teachers' content knowledge;
- e. Focus on helping teachers understand the most useful ways of representing the ideas of specific disciplines;
- f. Help teachers understand how to create and maintain appropriate teaching and learning environment;
- g. Have presenters who are knowledgeable in the content field; and
- h. Use clear and practical terms to describe the content.

Supporting of Staff Development. There is no doubt that the principal is a key person in the decision making process in schools today. The principal should maintain a vision that focuses on school improvement, should have the ability to be an instructional leader, should have appropriate skills to run staff development programs, and should be competent to lead the school. According to Teschke (1996, p. 10), good schools have strong, professionally focused principals who articulate a vision and are proactive in the pursuit of their vision. Principals have a "tremendous impact" on the quality of their schools. Barth (1990, p. 75) said that good schools have effective principals because principals have a "great capacity to stimulate professional growth and improved practice in their colleagues because they occupy the same rung on the bureaucratic ladder."

Effective principals facilitate teachers' professional development because advocating it is just not enough to accomplish the task and innovation. The principal must play an active role in initiating, guiding and supporting professional development if it is to succeed. Accordingly, Sparks (1992) believed that significant school improvement efforts are closely linked to quality staff development programs. He also believed that if a principal views staff development as one of his or her most important responsibilities, he or she will have a "profound influence" (p. 44) on the direction his/her school would take to meet the challenges of educating students for the 21st century.

As French (1997, p. 43) stated, the principal has a major role to play in teachers' professional growth. The principal can help "raise the quality of teaching by inspiring teachers to stay current in their field and assisting them in organizing and administering

their own professional development." Holland (1997) also thought that people feel better about themselves when they have leaders they admire and respect. When they feel a leader is concerned about them as individuals, they work harder. Therefore, a good principal can motivate teachers and other school staff to improve their school.

According to Levine (1989), a strong principal is at the heart of school effectiveness. Just as the teacher has to be a major model and support for children's learning in the classroom, the principal has to be a major model and support for the adults in the school. Therefore, Sergiovanni (1994) pointed out that the principal should preach, teach, and encourage teachers. Levine (1989, p. 18) also suggested six steps that principals could utilize to help teachers further their professional development:

1. Understand what adult development is;
2. Learn their own developmental limitations and strengths;
3. Be aware of the developmental needs of administrators and teachers;
4. Discover how teachers define support for themselves and create the kind of conditions that will nourish growth;
5. Encourage teachers to push against the boundaries of their development; and
6. Make adult growth a central and explicit part of the school's professional development plan.

Gall, Fielding, Schalock, Charters, and Wilczynski (1984) believed that the school principal's instructional leadership may help some teachers "overcome their resistance to implementing the program's objectives" (p. 10). The effective principal may also be able to provide leadership to help all teachers "sustain change in their classroom behavior over a substantial period of time" (p. 11). They also suggested that principals of effective schools regularly observe and give feedback on teachers' classroom instruction. In addition, effective principals attend teachers' staff development programs.

According to Fullan and Stiegelbauer (1991, p. 326), the impact of professional development depends on a combination of "motivation and opportunity" to learn. Therefore, principal's attitudes toward staff development will influence teachers' learning in professional development programs. Licklider(1997) also supported this viewpoint. He thought that administrative support is a significant determinant of successful staff development. When principals support change, participate in learning with teachers, provide incentives for change, reinforce change, and include change in school policies, there is far more improvement. King (1987) reported that teacher-administrator harmony is important if an innovation is to succeed. In his study, teachers reported they felt good when principals appreciated their implementation of innovations.

In summary, in the supporting stage, effective staff development programs should:

- a. Have the principal allocate the time necessary to all school personnel;
- b. Have the principal allocate the resources necessary to all school personnel;
- c. Have the principal actively participate in staff development programs;
- d. Have the principal serve as the staff development presenter; and
- e. Have the principal encourage teachers to serve as staff development presenters.

Follow-up Activities of Staff Development. After reviewing several researchers' work, the MSDE (1985, p. 2) summarized that "staff development programs should provide for follow-up and assistance to educators as they use their new skills and understanding in the work setting after they have been trained." These follow-up activities and assistance include time, resources, materials, and evaluation to enhance teachers' learning. As the AFT (1995) stated, effective professional development

provides sufficient time, support, and resources to enable teachers to be familiar with new content and pedagogy and to integrate and apply these into their classroom practice. The NSDC (1994) also proposed that effective staff development programs require an evaluation process that is ongoing and focused on all levels of the organization.

Wood and Thompson (1993) believed that successful staff development programs allow time to let participants reflect. The transformation of learning from training into daily practice requires follow-up assistance and coaching. Speck (1996) had similar thoughts. He indicated that teachers must have time and opportunity to “discuss, try, and reflect on, and hone new practices as well as to fashion new knowledge and beliefs about content, pedagogy, learners, and assessment” (p. 38). In Epperson’s (1998) study, he identified “adequate practice and feedback” and “structured opportunity” (p. 36) to implement the new teaching practices and share the professional experiences with one another as important to effective staff development programs.

In Hefner-Packer’s (1999) study, 356 K-12 teachers were selected to participate and reported that the opportunity to use what they learned from the training was important. In Agado’s (1998) study, she identified one of the components of effective staff development programs as permitting teachers time to reflect upon successful implementation. In Caldwell’s (1998) study, she also indicated that providing time for follow-up is important to staff development programs.

As Darling-Hammond (1998) stated, “teachers learn best by studying, doing, reflecting, and by sharing what they see” (p. 8). In addition, Newsome (1997) pointed out that effective staff development programs should provide opportunity, evaluation, and

feedback for follow-up activities. Therefore, allowing teachers time to think, to apply, and to discuss what they learned with peers is necessary. Additionally, a school's assistance for appropriate evaluation and feedback will also help create effective staff development programs.

In summary, in the follow-up stage, effective staff development programs should provide participants:

- a. time to think about what they learned;
- b. time to apply what they learned;
- c. time to discuss what they learned with peers;
- d. necessary assistance; and
- e. appropriate evaluation of what they learned.

Therefore, according to the above literature, the following characteristics of effective staff development programs are presented as a summary:

Characteristic 1: Staff development programs should involve teachers in the planning and decision-making process (Adornetto, 1999; Beller, 1998; Fish, 1996; Little, 1993; Lucas, 1998; Nuttall, 1996; OERI, 1997; Speck, 1996; Watanabe, 1998).

Characteristic 2: Staff development program purveyors should utilize "system thinking" (Adornetto, 1999; Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; MSDE, 1985; MSDESE, 1997; NSDC, 1994; Newsome, 1997; OERI, 1997; Senge, 1990; Sparks & Hirsh, 1997; Wood & Thompson, 1993).

Characteristic 3: Staff development programs should be conducted using constructivist approaches (Brooks & Brooks, 1993; Darling-Hammond, 1994; NSDC, 1994; OERI, 1997; Paciulan, 1996; Sparks & Hirsh, 1997; Stallings, 1989).

Characteristic 4: Staff development programs should be school-based (Goodman, 1995; Rogers, 1993, Sirotnik & Clark, 1988; Speck, 1996; Wood & Thompson, 1993).

Characteristic 5: Staff development programs should be based on adults' learning approaches (Knowles, 1980; NSDC, 1994; Wood & Thompson, 1993).

Characteristic 6: Staff development programs should be results-driven (AFT, 1995; Jantzen, 1996; MSDESE, 1997; NSDC, 1994; Sparks & Hirsh, 1997).

Characteristic 7: Staff development program presenters are important for implementing the activities (Apps, 1981; Brookfield, 1986; Draves, 1984; Galbraith, 1990; Galbraith, Sisco, & Guglielmino, 1997; Guskey, 1986; Knox, 1980).

Characteristic 8: The principal should be the key person in staff development programs (Barth, 1990; French, 1997; Fullan & Stiegelbauer, 1991; Gall, Fielding, Schalock, Charters, & Wilczynski, 1984; Holland, 1997; King, 1987; Kickliger, 1997; Levine, 1989; Sparks, 1992; Teschke, 1996).

Characteristic 9: Staff development programs are not one-shot activities. They should have follow-up activities such as reflection, assistance, and evaluation to examine the results of staff development programs (Agado, 1998; AFT, 1995; Caldwell, 1998; Darling-Hammond, 1998; Epperson, 1998; Hefner-Packer, 1999; MSDE, 1985; Newsome, 1997; Speck, 1996; Wood & Thompson, 1993).

Staff Development Studies Conducted in Taiwan

To understand the motivations of elementary and junior high school teachers in joining staff development program and the actual staff development practices in Taiwan, in 1982, the Taiwan Department of Education conducted a national wide study. Among 65,722 elementary teachers, 49,280 (74.9%) teachers wanted to participate in staff development programs. Female teachers (76.3%) had a greater willingness to attend staff development programs than did male teachers (73.1%). Public school teachers had less willingness (74.8%) to attend staff development programs than private school teachers (86.8%). The major reasons for not attending staff development programs were the age, the inconvenient transportation, and the family burden.

Among 40,367 junior high school teachers, 30,658 (75.9%) teachers want to participate in staff development programs. Female teachers (80.3%) had a greater willingness to attend staff development programs than did male teachers (71.4%). Public school teachers were less willing (75.7%) to attend staff development programs than private school teachers (83.7%). The major reasons for not attending staff development programs were the inconvenient transportation, the family burden, and the age.

Therefore, a difference in perceptions of staff development was shown by gender. Female teachers indicated a greater benefit from staff development programs. Teachers' individual limitations should be considered before the implementation of staff development.

In 1994, Tainan City Department of Education conducted a study that examined teachers' perceptions of staff development. In this study, 78.49% of female teachers

indicated a strong need for staff development. However, only 72.3% of male teachers indicated a similar need. Younger teachers indicated a stronger need for staff development than older teachers. For teachers who had taught less than 5 years, 89.6% believed that staff development is strongly necessary. Only 65% of teachers who had taught more than 30 years believed that staff development is strongly necessary. As to the purpose of staff development, 69.1% of participants believed that the major purpose of staff development is to improve teaching skills and gain professional knowledge.

For the format of staff development programs, most teachers (71.5%) preferred to invite external experts to give a speech or lecture. The greater the number of years of teaching experiences, the higher the percentage of interest in this kind of staff development activity. Only 11.0% of teachers agreed that teachers serving as staff development presenters would improve teaching skills.

Lin (1991) had similar findings. In her study, 628 of 848 (74.1%) participants believed that the major purpose of staff development is to gain professional knowledge. Female teachers had significantly higher scores than male teachers in believing that gaining professional knowledge as the purpose of staff development. This indicates that female teachers had higher expectations for staff development as a vehicle for improving teaching skills.

After conducting a staff development needs assessment study among secondary schools in Taipei City, Tsai (1998) found significant differences among teachers based on different gender and different teaching experience. In this study, Tsai found that female

teachers had higher needs than male teachers. In addition, teachers who had taught for less than 5 years had higher needs than teachers who had taught for more than 21 years.

In summary, Taiwan's female teachers have higher perceptions of staff development as a vehicle for gaining professional knowledge and improving teaching skills than male teachers. Female teachers also value staff development more highly than male teachers. These results are different from Western nations' findings. Davis (1984), Pisetsky (1979), and Underwood & Underwood (1977) found that the gender of the teacher is not a significant factor in teachers' perceptions in regard to staff development. Less experienced teachers have higher perceptions of staff development as a vehicle for gaining professional knowledge and improving teaching skills than experienced teachers. Less experienced teachers also value staff development more highly than experienced teachers. These results are different from Mullins' (1997) findings. Mullins found that there was no difference in teachers' perceptions based on their years of teaching experience. However, Davis (1984) had different findings. She found that the years of teaching experience appeared to be an important variable for perceptions of staff development. In her study, teachers who had taught for more than 31 years have significantly higher perception scores in staff development needs from teachers who have taught from 1-10 years, 11-20 years, and 21-30 years. Elementary school teachers had higher perceptions of staff development as a vehicle for gaining professional knowledge and improving teaching skills than junior high school teachers. This result is congruent with Asin-Manley's (1996) study that found elementary school teachers have more positive perceptions of staff development as an essential component to achieving school

purposes. Davis (1984) also found elementary school teachers have significantly higher perception scores in staff development needs assessment than secondary school teachers.

CHAPTER 2

METHODOLOGY

The purpose of this chapter is to describe the manner in which the researcher conducted the study in order to demonstrate that appropriate steps were taken to assure accurate information. There are 12 sections in this chapter: theoretical background; the population description; the sampling procedure; the instrument; why do survey research; the translation of the instrument; the modification of the instrument; the validity of the instrument; the reliability of the instrument; the data collection; the data analysis; and the limitations and delimitations.

Theoretical Background

According to Hofstede (1997), the world is filled with different people, groups, and nations, all with varying thoughts, feelings, and actions. Each person carries within patterns of thinking, feeling, and acting learned through their lifetime. These patterns were learned from family, from school, from the work place, from the living community, and from their culture. Therefore, different people may have different perceptions toward the same idea, thing, event, issue, or finding. This researcher applied teachers' educational degrees, teaching experience, gender, and teaching levels as the independent variables of this study.

After modifying the independent variables of his study, Almekhlafi (1990) applied cross-culture theory in his doctoral dissertation and used a Western nation's

instrument to examine Yemen Arab Republic teachers' staff development needs and found some similarities and differences between Western nations and Yemen Arab Republic. Almekhlafi applied teachers' educational degrees, years of teaching experience, age, and gender as the independent variables in his study. He found that the independent variable of educational degree was a non-significant factor affecting teachers' perceptions of in-service needs. This finding was congruent with Western nations' studies. He found that the independent variable of years of teaching experience was a non-significant factor affecting teachers' perceptions of in-service needs. This finding was different from Western nations' studies. He found that the independent variable of age was a non-significant factor affecting teachers' perceptions of in-service needs. This finding was congruent with Western nations' studies. He found that the independent variable of gender was a significant factor affecting teachers' perceptions of in-service needs. This finding was different from Western nations' findings.

As cross-culture theory was applied to this study, the researcher expected similarities and differences between Western nations and Taiwan. In addition, the researcher expected that the independent variables of teachers' educational degrees, years of teaching experiences, teaching levels, and teachers' gender would influence the dependent variable of teachers' perceptions of staff development as a vehicle for improving teaching skills.

Population Description

The population in this study was selected from Tainan City, Taiwan. This city, located in the southern part of Taiwan, is the former capital of Taiwan and has

maintained the culture of Taiwan. Presently, according to Tainan City Government (1997), Tainan City has a population of 717,811. There are 2 universities, 9 public senior high schools, 19 public junior high schools, and 41 public elementary schools. In the school year 1999 to 2000, there were 2,658 certified teachers in public elementary schools and 2,042 certified teachers in public junior high schools.

Sampling Procedure

This section describes the processes of selecting samples from the population. Since the Taiwan Department of Education mandates that all teachers must participate in staff development programs, teachers from all subject areas have the experience of joining these programs. Therefore, teachers from all subject areas were randomly selected for this research. However, since first-year teachers did not have sufficient experience with staff development programs, they were not included in this study.

There were 2,658 certified teachers in public elementary schools. After discarding 106 first year teachers, the total number of qualified elementary school teachers who could serve as the population in this study was 2,550. There were 2,042 certified teachers in public junior high schools. After discarding 35 first year teachers, the total number of qualified junior high school teachers who could serve as the population in this study was 2,007. Therefore, the total number of qualified teachers who could serve as the population in this study was 4,557. In selecting the sample size, the researcher considered sample error. According to Krejcie & Morgan (1970), to maintain a sample error less than 5%, the sample size should be 357 when the population is 5,000. In this study, the number of public elementary school teachers

and junior high school teachers was 4,682. Therefore, 358 teachers served as the sample in this study. In addition, because this study compared the perceptions of staff development as a vehicle for improving teaching skills based on different teaching levels, according to stratified sampling method, there were 200 elementary school teachers and 158 junior high school teachers serving as the sample in this study. After deciding the sample size, the researcher went to the Tainan City Department of Education to gain permission for using Tainan City teachers as the subjects in this study (Appendix C). The sample teachers were randomly selected by a random drawing process on November 2 and 3, 1999. The researcher wrote each teacher's name on a name card and put the name card into two containers (one for elementary school teachers and the other one for junior high school teachers) and randomly selected the sample names from the containers. Then, all sample teachers' names and addresses were collected by the researcher.

Instrument

An instrument titled "Mississippi Teacher Perceptions of Staff Development as a Vehicle for School Improvement" which was designed by Criss (1990, Appendix A) in her doctoral dissertation was modified into "Tainan City Teacher Perceptions of Staff Development As a Vehicle for Improving Teaching Skills" (hereafter known as Teacher Perceptions Survey, Appendix F). This modified instrument was used to collect data about the dependent variable of Tainan City teachers' perceptions of staff development as a vehicle for improving teaching skills. Additionally, this instrument was used to collect data for the independent variables of teachers' educational degrees, teachers' teaching experience, and teachers' gender. There were five sections in this instrument.

Section I of this instrument consisted of 25 statements that used a six-point Likert scale to collect the data that determine Tainan City teachers' perceptions of staff development as a vehicle for improving teaching skills. There were four areas in Section I: the planning of staff development, six statements; the implementation of staff development, nine statements; the supporting of staff development, five statements; and, the follow-up activities of staff development that included five statements. The participants responded to each statement along the six-point continuum from 1, "I strongly disagree" to 6, "I strongly agree."

A perception score from 25 to 150 was determined for each participant by adding each participant's response to each of the 25 items. The scores from 25 to 150 represent a perception continuum:

25 to 45 - strongly disagree that staff development is a vehicle for improving teaching skills;

46 to 66 - disagree that staff development is a vehicle for improving teaching skills;

67 to 87- somewhat disagree that staff development is a vehicle for improving teaching skills;

88 to 108- somewhat agree that staff development is a vehicle for improving teaching skills;

109 to 129- agree that staff development is a vehicle for improving teaching skills;
and,

130 to 150- strongly agree that staff development is a vehicle for improving teaching skills.

In addition, participants were asked to select the most important and the second most important characteristics in each area. There were four areas in section I. Therefore, there were eight questions the participants needed to answer.

Section II of the instrument was used to collect data about the independent variable of teachers' educational degrees. The participants were asked to indicate by marking a box whether their educational degrees was an associate degree, a bachelors degree, or a masters degree. Section III of the instrument was used to collect data about the independent variable of the number of years of teaching experience. The participants were asked to indicate by marking a box how many years of teaching experience they have. Section IV of the instrument was used to collect data about the independent variable of teachers' gender. The participants were asked to indicate by marking a box whether they are male or female. The independent variables of teachers' teaching levels were gained from the Tainan City Department of Education. In section V, the participants were asked to indicate by marking a box whether they wanted to receive the executive summary of the study results.

Why Survey Research

This section explains the reason for using survey research in this study. According to Gay (1992), a survey is an attempt to collect data from samples of a

population in order to determine the current status of that population with respect to one or more variables. It can be used in many fields such as political science, sociology, economics, and education. In education, its most common use is for the collection of data by schools or about schools. School surveys can provide necessary and valuable information both to the schools studied and to other agencies and groups whose operations are school related.

Survey research, such as attitude scales and personality inventories, is designed to measure characteristics of individuals along a number of dimensions and to assess feelings and attitudes toward self, others, and a variety of other activities, institutions, and situations. Therefore, survey research may well be the most frequently used test in educational research. Additionally, Likert scales attempt to determine what an individual believes and perceives. Thus this study utilized Likert scales to collect the necessary data.

Translation of the Instrument

This section describes the procedures of translating the instrument from English to a Chinese version. Before being administered to the actual subjects, the instrument was translated from English to a Chinese version. Then, the translated version was reviewed for accuracy by two professors who are teaching in National Tainan Teachers College (Appendix D). Each of the reviewers are proficient in both English and Chinese. The reviewers were individually interviewed by the researcher and were requested to compare both English and Chinese versions. The review period was from October 26, 1999 to November 1, 1999. These two professors had some suggestions in wording. The researcher revised the instrument as the reviewers recommended. In

addition, to clarify and make sure the instrument was understandable by the subjects, the researcher administered a pilot study in Chia-Lu Elementary School, Pingtung, after the examination of both the translation and the content validity. This pilot study included 10 teachers and was held on November 3, 1999. The participants were asked to comment on the written instructions and on the individual items as to their clarity. No participants had any suggestions for change.

Modification of the Instrument

This section describes the procedures of modifying the instrument in order to fit the study's different backgrounds. There were two reasons to modify the original instrument. First, since the educational systems are different between Taiwan and the United States, the original instrument was modified in some areas. For example, there is only one superintendent in Tainan City, therefore, there was no need to collect data about district type or whether the superintendent is elected or appointed. Instead, the researcher of this study collected teachers' educational degrees as one of the independent variables. In addition, in the original instrument, Criss (1990) collected data about teaching levels from kindergarten to grade twelve. However, in Taiwan, public school education is from grade one to grade nine. In other words, the mandatory education is from elementary school to junior high school in Taiwan. Therefore, the study only collected data about teaching levels from grade one to grade nine.

Second, with the development of additional concepts and characteristics of effective staff development programs from 1990 to 1999, the original instrument was

outdated in some parts. After reviewing current literature and reports, the researcher added some appropriate questions to fit current educational settings. The written permission for using and modifying the instrument was gained from the original author before the modification (Appendix B).

Validity of the Instrument

Validity, according to Gay (1992), is "the degree to which a test measures what it is supposed to measure" (p. 155). In addition, content validity is "the degree to which a test measures an intended content area" (p. 156). It includes both item validity and sampling validity. For the purpose of this study, the content validity of the instrument was established in this study. In Criss' study, there were two channels to establish the content validity of the instrument. The first channel was the Mississippi Department of Education's Preparing a Comprehensive Staff Development Plan: A Technical Guide (1985), that served as the blueprint of the State of Mississippi's model for improving staff development programs. The other channel was a panel of three experts who were proficient in staff development programs. Criss used these two approaches to establish the validity of the original instrument.

The validity of the modified instrument was examined from October 26 to November 1, 1999 by a panel of three experts who are proficient in staff development. Two of the three experts are professors who teach in Tainan Teachers College and the other is the assistant superintendent of Tainan City Department of Education (Appendix D). This panel received a copy of the draft instrument (Appendix E) and examined each

item for its content validity. The researcher met with them and made the following changes:

- (1) One expert suggested the researcher divide the independent variable of teachers' teaching experience into four groups. They were from 2 to 5 years, from 6 to 10 years, from 11 to 20 years, and beyond 21 years. The researcher took his recommendation.
- (2) Two experts suggested the researcher not only examine teachers' perceptions of ideal staff development programs, but also examine their perceptions of actual practices of staff development programs. The researcher did not take this recommendation.
- (3) One expert suggested the researcher separate statement 21 into more statements in order to make the statements clearer. The researcher took his recommendation.

Reliability of the Instrument

This section described the processes establishing the reliability of the modified instrument. As Gay (1992) stated, reliability is "the degree to which a test consistently measures whatever it measures" (p. 161). The more reliable a test is, the more confidence researchers will have that the scores obtained from the administration of the test are essentially the same scores that would be obtained if the test were readministered. To establish the test-retest reliability of the modified instrument, the researcher tested and retested 25 teachers from Yung-Kang Elementary School, Tainan County. To avoid the subjects remembering the content of the instrument, the retest date was two weeks after the first test date. The first test date was November 4, 1999 and the re-test date was November 18, 1999. The teachers participating in the pilot study were asked to complete

the final draft of the instrument on the two different dates without receiving verbal instruction.

After the results of test-retest reliability were collected, the researcher began to compute the correlation coefficients. As Gay (1992) stated, in a study "designed to explore or test hypothesized relationships, a correlation coefficient is interpreted in term of its statistical significance" (p. 267). In this study, according to Gay (1992), "at the 95% confidence level, with 25 cases, a correlation coefficient of at least 0.4227" (p. 574) was necessary to conclude the existence of a relationship. Additionally, coefficients in the .60s and .70s are usually "adequate" (p. 268) for group prediction purpose and coefficients in the .80s and above for individual prediction purposes. Therefore, 0.4227 shows the existence of relationships between two variables and .60s or .70s shows the acceptance of a correlation coefficient. The correlation coefficients of each part in this study were the following:

- (1) The perception scores of staff development programs in Section I were 0.822.
- (2) The most important characteristic in the planning of staff development was 0.942.
- (3) The second most important characteristic in the planning of staff development was 0.724.
- (4) The most important characteristic in the implementation of staff development was 0.920.
- (5) The second most important characteristic in the implementation of staff development was 0.786.
- (6) The most important characteristic in the supporting of staff development was 0.890.

- (7) The second most important characteristic in the supporting of staff development was 0.821.
- (8) The most important characteristic in the follow-up activities of staff development was 0.851.
- (9) The second most important characteristic in the follow-up activities of staff development was 0.822.

Data Collection

Data for the dependent variable teachers' perceptions of staff development as a vehicle for improving teaching skills and three of the independent variables, teachers' educational degrees, years of teaching experience, and gender were collected by using the Teachers Perceptions Survey (Appendix F) for this study. The other independent variable of teachers' teaching levels was collected from Tainan City's Department of Education.

When the panel of experts examined the content validity of the instrument, two of them also suggested an approach to increase the return rate of the instrument. They suggested the researcher mail the instrument to representatives in each school, then give the sample teachers' names to the representatives, letting the representative teachers dispatch, collect, and return the instrument to the researcher. Therefore, after randomly selecting participating teachers from the population, the researcher found a representative teacher in each school where a participating teacher was selected and called the representative teachers for their assistance. Most of the teacher representatives were the researcher's former students in Tainan Teachers College in the summer term, 1999. Then,

the instruments were mailed to the representative teachers with an accompanying letter of explanation, with a stamped, addressed envelope for the return of the instrument. The instruments were coded by a 3-digit number for the purpose of determining if the instrument had been returned to the researcher.

To ensure anonymity, the numerical coding was the only identifying feature of the instrument. The subjects were assured that the coding would not be used for any purpose except identifying which instrument had been returned.

The data were collected beginning November 22, 1999. The instruments, letters of explanation (Appendix G), and pre-stamped return envelopes were mailed to representative teachers on November 22, 1999, and they were asked to return the instruments by December 3, 1999. On December 8, 1999, the researcher called those representative teachers who had not returned the instruments and asked that they be returned by December 13, 1999.

Data Analysis

Two different methods of analysis were used in this study. The first one was a two-way Analysis of Variance (two-way ANOVA). Two-way ANOVA is often used in the field of education. According to Popham and Sirotnik (1992), "because education is one of the most complex behavioral fields, investigations conducted must employ data analysis techniques that take into consideration not only more than one variable but also extremely subtle interactions among variables"(p. 180). When the researcher used two-way ANOVA, the interaction was examined first. If significant interaction was found, it was interpreted. If no significant interaction was found, the researcher went on to test for

main effects. For the post-hoc comparison, Newman-Keuls was chosen for use because it provides the best balance between making a Type I or a Type II error. A Type I error rejects the true null hypothesis while a Type II error retains the false null hypothesis. According to Glass and Hopkins (1996), "the Newman-Keuls levels provide a high degree of protection for the entire null hypothesis, and this is the multiple range this author favors" (p. 452). In addition, to get a balance between a Type I error and a Type II error, the alpha was set at the 0.05 level.

The second statistical method used was mean score, frequency and percentage calculation. This study also examined Taiwan teachers' level of agreement on 25 statements that were based on Western nations' literature. Frequency and percentage were used to explain the findings. The Statistical Package for the Social Science (SPSS) was used to perform the necessary calculations.

Question 1- "Was there a favorable perception of staff development as a vehicle for improving teaching skills among Tainan City's public elementary and junior high school teachers?", was a descriptive question. The researcher calculated the mean of all statements to describe and discuss the findings. In addition, the researcher calculated the level of agreement of each statement to describe and discuss the findings.

Hypothesis 1 referred to question 2 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degree and teachers' teaching levels. This hypothesis was tested by a two-way ANOVA.

1a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree). This hypothesis was tested by a two-way ANOVA.

1b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school. This hypothesis was tested by a two-way ANOVA.

Hypothesis 2 referred to question 3 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degree and teachers' teaching experiences. This hypothesis was tested by a two-way ANOVA.

2a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degree (associate degree, bachelor's degree, and master's degree). This hypothesis was tested by a two-way ANOVA.

2b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experiences (2-5 years, 6-10 years, 11-20 years, and beyond 21 years). This hypothesis was tested by a two-way ANOVA.

Hypothesis 3 referred to question 4 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving

teaching skills between educational degree and teachers' gender. This hypothesis was tested by a two-way ANOVA.

3a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degree (associate degree, bachelor's degree, and master's degree). This hypothesis was tested by a two-way ANOVA.

3b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. This hypothesis was tested by a two-way ANOVA.

Hypothesis 4 referred to question 5 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' teaching experience. This hypothesis was tested by a two-way ANOVA.

4a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school. This hypothesis was tested by a two-way ANOVA.

4b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience (2-5 years, 6-10 years, 11-20 years, and beyond 21 years). This hypothesis was tested by a two-way ANOVA.

Hypothesis 5 referred to question 6 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' gender. This hypothesis was tested by a two-way ANOVA.

5a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school. This hypothesis was tested by a two-way ANOVA.

5b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. This hypothesis was tested by a two-way ANOVA.

Hypothesis 6 referred to question 7 and stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching experience and teachers' gender. This hypothesis was tested by a two-way ANOVA.

6a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience. This hypothesis was tested by a two-way ANOVA.

6b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. This hypothesis was tested by a two-way ANOVA.

Question 8- "What was the most important characteristic in the planning stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 9- "What was the second most important characteristic in the planning stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 10- "What was the most important characteristic in the implementation stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 11- "What was the second most important characteristic in the implementation stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 12- "What was the most important characteristic in the supporting of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 13- "What was the second most important characteristic in the supporting of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 14- "What was the most important characteristic in the follow-up stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Question 15- "What was the second most important characteristic in the follow-up stage of a staff development program?", was a descriptive question. The researcher calculated the frequency and percentage to describe and discuss the findings.

Limitation and Delimitation

Limitation, according to Gay (1992), is "some aspect of the study that the researcher knows may negatively affect the results or generalizability of the results but over which he or she probably has no control" (p. 108). In addition, according to Creswell (1994), delimitation should be used to address how the study will be narrowed down in scope. Therefore, the limitations and delimitations of this study were the following:

- (1) The sample was 358 randomly selected public elementary and junior high school teachers in Tainan City who already have a teaching certificate and have taught at least two years. This study did not include student teachers, substitute teachers, first-year teachers, private school teachers, or principals.
- (2) The period for conducting this study was in the school year 1999 to 2000.
- (3) This study examined teacher perceptions of staff development as a vehicle for improving teaching skills only.
- (4) The teacher representatives dispatched, collected, and returned the instruments to the researcher and may have the chance to read the sampled teachers' response.

CHAPTER 3

FINDINGS AND INTERPRETATIONS

This purpose of this chapter is to present the findings specific to each of the 19 research questions. There are three sections in this chapter: the introduction; the description of the sample; and the statistical analysis.

Introduction

The purpose of this study was to examine teachers' perceptions of staff development as a vehicle for improving teaching skills. In Chapter 2, information was provided that described how the data were collected, the instrument used, and a description of the sample. This chapter provides results of the tests of hypotheses and analyses of those results.

The problem of this study was to determine the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving their teaching skills. In addition, the researcher examined whether there was a difference in perception of staff development as a vehicle for improving teachers' teaching skills based on teachers' educational degrees, years of teaching experience, gender, and level of teaching (elementary or junior high school). The researcher applied a two-way ANOVA to examine the interaction of the independent variables of teachers' educational degrees to teaching levels; teachers' educational

degrees to teaching experience; teachers' educational degrees to gender; teachers' teaching levels to teaching experience; teachers' teaching levels to gender; and teachers' teaching experience to gender. When hypotheses with interactions were found, interactions were interpreted. Those hypotheses that were found that had no interaction were tested further for main effect. When a significant main effect was found, a Newman-Keuls post hoc comparison was applied.

The following questions were also answered: what were the most and second most important characteristics in the planning stage of staff development; what were the most and second most important characteristics in the implementation stage of staff development; what were the most and the second most important characteristics in the supporting stage of staff development; and what were the most and the second most important characteristics in the follow-up activities of staff development.

The Description of the Sample

There were 358 public elementary and junior high school teachers randomly selected in this study. Two hundred were from elementary schools and 158 were from junior high schools. The researcher mailed out 200 instruments to elementary school teachers (Appendix H) and received 197 instruments, however, eight instruments were invalid due to insufficient data. Therefore, there were 189 useable instruments with a useable return rate of 94.50%. The researcher mailed 158 instruments to junior high school teachers (Appendix I) and received 136 instruments. However, four of them were invalid due to insufficient data. Therefore, at the junior high school level, there were 132 useable instruments with a useable return rate of 83.54%. After combining elementary

and junior high school teachers, the total useable instruments were 321. The useable return rate was 89.66%(see Table 1).

Table 1: The Total Sample

| Solicitation | Number Mailed | Number Returned | Number Deleted | Number Useable | Useable Return Rate |
|--------------------|---------------|-----------------|----------------|----------------|---------------------|
| Elementary School | 200 | 197 | 8 | 189 | 94.50% |
| Junior High School | 158 | 136 | 4 | 132 | 83.54% |
| Total | 358 | 333 | 12 | 321 | 89.66% |

Among the 321 sample teachers whose instruments were useable, 39 (12.1%) of them had an associate degree; 225 (70.1%) of them had a bachelors degree; and 57 (17.8%) of them had a masters degree. Among the 321 sample teachers whose instruments were useable, 36 (11.2%) of them had teaching experiences from 2-5 years; 51 (15.9%) of them had teaching experiences from 6-10 years; 110 (34.3%) of them had teaching experiences from 11-20 years; and 124 (38.6%) of them had teaching experiences 21 years and beyond. Among the 321 sample teachers whose instruments were useable, 104 (32.4%) of them were males, and 217 (67.6%) of them were females. Among the 321 sample teachers whose instruments were useable, 189 (58.9%) of them taught in elementary school, and 132 (41.1%) of them taught in junior high school (see Table 2, 3, 4, and 5).

Table 2: Sample of Educational Degrees

| | Frequency | Percentage |
|------------------|-----------|------------|
| Associate Degree | 39 | 12.1% |
| Bachelors Degree | 225 | 70.1% |
| Masters Degree | 57 | 17.8% |
| Total | 321 | 100.0% |

Table 3: Sample of Teaching Experience

| | Frequency | Percentage |
|---------------------|-----------|------------|
| 2-5 years | 36 | 11.2% |
| 6-10 years | 51 | 15.9% |
| 11-20 years | 110 | 34.3% |
| 21 years and Beyond | 124 | 38.6% |
| Total | 321 | 100.0% |

Table 4: Sample of Gender

| | Frequency | Percentage |
|--------|-----------|------------|
| Male | 104 | 32.4% |
| Female | 217 | 67.6% |
| Total | 321 | 100.0% |

Table 5: Sample of Teaching Levels

| | Frequency | Percentage |
|--------------------|-----------|------------|
| Elementary School | 189 | 58.9% |
| Junior High School | 132 | 41.1% |
| Total | 321 | 100.0% |

Statistical Analysis

This section has two areas. The first one is the descriptive data, the second, the tests of hypotheses.

Descriptive data

Data for the dependent variable of teacher perceptions of staff development as a vehicle for improving teaching skills were collected using Section I of the Teachers Perceptions Survey. Among the 321 respondents, 0 strongly disagreed that staff development is a vehicle for improving teaching skills; 1 (0.3%) disagreed that staff development is a vehicle for improving teaching skills; 1 (0.3%) somewhat disagreed that staff development is a vehicle for improving teaching skills; 31 (9.7%) somewhat agreed that staff development is a vehicle for improving teaching skills; 185 (57.7%) agreed that staff development is a vehicle for improving teaching skills; and 103 (32.0%) strongly agreed that staff development is a vehicle for improving teaching skills. The mean score was 123.94 (see Table 6).

Table 6: Tainan City Public Elementary and Junior High School Teachers' Perceptions of Staff Development as a Vehicle for Improving Teaching Skills

| Perception | Perception Score Range | Frequency | Percentage |
|-------------------|------------------------|-----------|------------|
| Strongly Disagree | 25-45 | 0 | 0% |
| Disagree | 46-66 | 1 | 0.3% |
| Somewhat Disagree | 67-87 | 1 | 0.3% |
| Somewhat agree | 88-108 | 31 | 9.7% |
| Agree | 109-129 | 185 | 57.7% |
| Strongly Agree | 130-150 | 103 | 32.0% |
| Total | | 321 | 100.0% |

Mean Score = 123.94

Statement 1 of the instrument stated that if staff development programs involve teacher representatives in planning and decision-making processes, they will improve teaching skills. Among 321 respondents, 1 (0.3%) "strongly disagree"; 3 (0.9%) "disagree"; 6 (1.9%) "somewhat disagree"; 33 (10.3%) "somewhat agree"; 159 (49.5%) "agree"; and 119 (37.1%) "strongly agree" (see Table 7). The total number of respondents who "agree" or "strongly agree" was 278, or 86.6%.

Statement 2 stated that if staff development programs prepare teachers to carry out their job responsibilities, they will improve teaching skills. Among 321 respondents, 1 (0.3%) "strongly disagree"; 3 (0.9%) "disagree"; 12 (3.7%) "somewhat disagree"; 40 (12.5%) "somewhat agree"; 182 (56.7%) "agree"; and 83 (25.9%) "strongly agree" (see

Table 7). The total number of respondents who “agree” or “strongly agree” was 265, or 82.6%.

Statement 3 stated that if staff development programs are congruent with the district’s educational goals, they will improve teaching skills. Among 321 respondents, 1 (0.3%) “strongly disagree”; 18 (5.6%) “disagree”; 20 (6.2%) “somewhat disagree”; 64 (19.9%) “somewhat agree”; 156 (48.6%) “agree”; and 60 (18.7%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 216, or 67.3%.

Statement 4 stated that if staff development programs are congruent with the school’s educational goals, they will improve teaching skills. Among 321 respondents, 2 (0.6%) “strongly disagree”; 5 (1.6%) “disagree”; 13 (4.0%) “somewhat disagree”; 56 (17.4%) “somewhat agree”; 178 (55.5%) “agree”; and 67 (20.9%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 245, or 76.4%.

Statement 5 stated that if staff development programs are congruent with teachers individual goals, they will improve teaching skills. Among 321 respondents, 1 (0.3%) “strongly disagree”; 1 (0.3%) “disagree”; 4 (1.2%) “somewhat disagree”; 28 (8.7%) “somewhat agree”; 149 (46.4%) “agree”; and 138 (43.0%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 287, or 89.4%.

Statement 6 stated that if staff development programs’ purveyor consider participants’ limitations in advance, staff development will improve teaching skills.

Among 321 respondents, 2 (0.6%) “strongly disagree”; 6 (1.9%) “disagree”; 11 (3.4%) “somewhat disagree”; 18 (5.6%) “somewhat agree”; 119 (37.1%) “agree”; and 165 (51.4%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 284, or 88.5%.

Statement 7 stated that if staff development programs are conducted in a supportive and collaborative climate, they will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 4 (1.2%) “disagree”; 3 (0.9%) “somewhat disagree”; 21 (6.5%) “somewhat agree”; 160 (49.8%) “agree”; and 133 (41.4%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 293, or 91.2%.

Statement 8 stated that if staff development programs apply constructivist learning approaches, they will improve teaching skills. Among 321 respondents, 3 (0.9%) “strongly disagree”; 12 (3.7%) “disagree”; 40 (12.5%) “somewhat disagree”; 92 (28.7%) “somewhat agree”; 127 (39.6%) “agree”; and 47 (14.6%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 174, or 54.2%.

Statement 9 stated that if each school can decide its own staff development activities, staff development will improve teaching skills. Among 321 respondents, 1 (0.3%) “strongly disagree”; 3 (0.9%) “disagree”; 12 (3.7%) “somewhat disagree”; 62 (19.3%) “somewhat agree”; 160 (49.8%) “agree”; and 83 (25.9%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 243, or 75.7%.

Statement 10 stated that if staff development programs apply activities designed for adult learners, they will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 5 (1.6%) “disagree”; 5 (1.6%) “somewhat disagree”; 62 (19.3%) “somewhat agree”; 164 (51.1%) “agree”; and 85 (26.5%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 249, or 77.6%.

Statement 11 stated that if staff development programs focus on enhancing content knowledge, they will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 4 (1.2%) “disagree”; 7 (2.2%) “somewhat disagree”; 35 (10.9%) “somewhat agree”; 160 (49.8%) “agree”; and 115 (35.8%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 275, or 85.6%.

Statement 12 stated that if staff development programs focus on helping teachers develop an understanding of the most useful ways of representing the ideas of specific disciplines, they will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 1 (0.3%) “disagree”; 4 (1.2%) “somewhat disagree”; 33 (10.3%) “somewhat agree”; 177 (55.1%) “agree”; and 106 (33.0%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 283, or 88.1%.

Statement 13 stated that if staff development programs focus on helping teachers understand how to create and maintain an appropriate teaching and learning environment, they will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 3 (0.9%) “disagree”; 10 (3.1%) “somewhat disagree”; 59 (18.4%) “somewhat agree”; 154 (48.0%) “agree”; and 95 (29.6%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 249, or 77.6%.

Statement 14 stated that if the staff development program presenter is knowledgeable in the presenting field, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 3 (0.9%) “disagree”; 6 (1.9%) “somewhat disagree”; 36 (11.2%) “somewhat agree”; 146 (45.5%) “agree”; and 130 (40.5%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 276, or 86.0%.

Statement 15 stated that if the staff development program presenter uses clear and practical terms to describe the content, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 2 (0.6%) “disagree”; 3 (0.9%) “somewhat disagree”; 44 (13.7%) “somewhat agree”; 162 (50.5%) “agree”; and 110 (34.3%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 272, or 84.8%.

Statement 16 stated that if the principal allocates the time necessary to implement staff development, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 3 (0.9%) “disagree”; 10 (3.1%) “somewhat disagree”; 25 (7.8%) “somewhat agree”; 146 (45.5%) “agree”; and 137 (42.7%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 283, or 88.2%.

Statement 17 stated that if the principal allocates the resources necessary to implement staff development, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 2 (0.6%) “disagree”; 2 (0.6%) “somewhat disagree”; 21 (6.5%) “somewhat agree”; 149 (46.4%) “agree”; and 147 (45.8%) “strongly

agree" (see Table 7). The total number of respondents who "agree" or "strongly agree" was 296, or 92.2%.

Statement 18 stated that if the principal actively participates in staff development programs, staff development will improve teaching skills. Among 321 respondents, 2 (0.6%) "strongly disagree"; 21 (6.5%) "disagree"; 25 (7.8%) "somewhat disagree"; 101 (31.5%) "somewhat agree"; 116 (36.1%) "agree"; and 56 (17.4%) "strongly agree" (see Table 7). The total number of respondents who "agree" or "strongly agree" was 172, or 53.5%.

Statement 19 stated that if the principal serves as a staff development presenter, staff development will improve teaching skills. Among 321 respondents, 11 (3.4%) "strongly disagree"; 23 (7.2%) "disagree"; 65 (20.2%) "somewhat disagree"; 87 (27.1%) "somewhat agree"; 100 (31.2%) "agree"; and 35 (10.9%) "strongly agree" (see Table 7). The total number of respondents who "agree" or "strongly agree" was 135, or 42.1%.

Statement 20 stated that if the principal encourages teachers to serve as staff development presenters, staff development will improve teaching skills. Among 321 respondents, 6 (1.9%) "strongly disagree"; 22 (6.9%) "disagree"; 38 (11.8%) "somewhat disagree"; 99 (30.8%) "somewhat agree"; 126 (39.3%) "agree"; and 30 (9.3%) "strongly agree" (see Table 7). The total number of respondents who "agree" or "strongly agree" was 156, or 48.6%.

Statement 21 stated that if teachers have sufficient time to think about what they learned from staff development, staff development will improve teaching skills. Among 321 respondents, 0 selected "strongly disagree"; 1 (0.3%) "disagree"; 9 (2.8%)

“somewhat disagree”; 42 (13.1%) “somewhat agree”; 175 (54.5%) “agree”; and 94 (29.3%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 269, or 83.8%.

Statement 22 stated that if teachers have sufficient time to apply what they learned from the staff development, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 2 (0.6%) “disagree”; 2 (0.6%) “somewhat disagree”; 30 (9.3%) “somewhat agree”; 162 (50.5%) “agree”; and 125 (38.9%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 287, or 89.4%.

Statement 23 stated that if teachers have sufficient time to discuss what they learned from staff development activities with peers, staff development will improve teaching skills. Among 321 respondents, 0 “strongly disagree”; 2 (0.6%) “disagree”; 6 (1.9%) “somewhat disagree”; 47 (14.6%) “somewhat agree”; 153 (47.7%) “agree”; and 113 (35.2%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 266, or 82.9%.

Statement 24 stated that if the school provides necessary follow-up assistance after staff development activities, staff development will improve teaching skills. Among 321 respondents, 1 (0.3%) “strongly disagree”; 2 (0.6%) “disagree”; 4 (1.2%) “somewhat disagree”; 42 (13.1%) “somewhat agree”; 158 (49.2%) “agree”; and 114 (35.5%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 272, or 84.7%.

Statement 25 stated that if the school appropriately evaluates what teachers learned from staff development, staff development will improve teaching skills. Among 321 respondents, 10 (3.1%) “strongly disagree”; 23 (7.2%) “disagree”; 46 (14.3%) “somewhat disagree”; 99 (30.8%) “somewhat agree”; 112 (34.9%) “agree”; and 31 (9.7%) “strongly agree” (see Table 7). The total number of respondents who “agree” or “strongly agree” was 143, or 44.6%.

Table 7: Degree of Agreement to Each Statement

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|--|--------------------------------------|---------------------------------------|---------------------------------------|--|---|---|
| 1. Teacher Involvement | Frequency 1 Percentage 0.3% | Frequency 3 Percentage 0.9% | Frequency 6 Percentage 1.9% | Frequency 33 Percentage 10.3% | Frequency 159 Percentage 49.5% | Frequency 119 Percentage 37.1% |
| 2. Prepare Teacher to Implement Job Responsibilities | Frequency 1 Percentage 0.3% | Frequency 3 Percentage 0.9% | Frequency 12 Percentage 3.7% | Frequency 40 Percentage 12.5% | Frequency 182 Percentage 56.7% | Frequency 83 Percentage 25.9% |
| 3. Congruent with District Goals | Frequency 3 Percentage 0.9% | Frequency 18 Percentage 5.6% | Frequency 20 Percentage 6.2% | Frequency 64 Percentage 19.9% | Frequency 156 Percentage 48.6% | Frequency 60 Percentage 18.7% |
| 4. Congruent with School Goals | Frequency 2 Percentage 0.6% | Frequency 5 Percentage 1.6% | Frequency 13 Percentage 4.0% | Frequency 56 Percentage 17.4% | Frequency 178 Percentage 55.5% | Frequency 67 Percentage 20.9% |
| 5. Congruent with Individual Goals | Frequency 1 Percentage 0.3% | Frequency 1 Percentage 0.3% | Frequency 4 Percentage 1.2% | Frequency 28 Percentage 8.7% | Frequency 149 Percentage 46.4% | Frequency 138 Percentage 43.0% |
| 6. Consider Limitation in advance | Frequency 2 Percentage 0.6% | Frequency 6 Percentage 1.9% | Frequency 11 Percentage 3.4% | Frequency 18 Percentage 5.6% | Frequency 119 Percentage 37.1% | Frequency 165 Percentage 51.4% |

Table 7: Continued

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|--|--------------------------------------|---------------------------------------|--|--|---|---|
| 7. Supportive and Collaborative Climate | Frequency 0 Percentage 0% | Frequency 4 Percentage 1.2% | Frequency 3 Percentage 0.9% | Frequency 21 Percentage 6.5% | Frequency 160 Percentage 49.8% | Frequency 133 Percentage 41.4% |
| 8. Constructivist Learning Methods | Frequency 3 Percentage 0.9% | Frequency 12 Percentage 3.7% | Frequency 40 Percentage 12.5% | Frequency 92 Percentage 28.7% | Frequency 127 Percentage 39.6% | Frequency 47 Percentage 14.6% |
| 9. School-based staff development programs | Frequency 1 Percentage 0.3% | Frequency 3 Percentage 0.9% | Frequency 12 Percentage 3.7% | Frequency 62 Percentage 19.3% | Frequency 160 Percentage 49.8% | Frequency 83 Percentage 25.9% |
| 10. Designed for Adult Learners | Frequency 0 Percentage 0% | Frequency 5 Percentage 1.6% | Frequency 5 Percentage 1.6% | Frequency 62 Percentage 19.3% | Frequency 164 Percentage 51.1% | Frequency 85 Percentage 26.5% |
| 11. Enhancing Content Knowledge | Frequency 0 Percentage 0% | Frequency 4 Percentage 1.2% | Frequency 7 Percentage 2.2% | Frequency 35 Percentage 10.9% | Frequency 160 Percentage 49.8% | Frequency 115 Percentage 35.8% |
| 12. Understanding the Most Useful Ways | Frequency 0 Percentage 0% | Frequency 1 Percentage 0.3% | Frequency 4 Percentage 1.2% | Frequency 33 Percentage 10.3% | Frequency 177 Percentage 55.1% | Frequency 106 Percentage 33.0% |
| 13. Understand How to Create Teaching and Learning Environment | Frequency 0 Percentage 0% | Frequency 3 Percentage 0.9% | Frequency 10 Percentage 3.1% | Frequency 59 Percentage 18.4% | Frequency 154 Percentage 48.0% | Frequency 95 Percentage 29.6% |
| 14. Presenter is Knowledgeable | Frequency 0 Percentage 0% | Frequency 3 Percentage 0.9% | Frequency 6 Percentage 1.9% | Frequency 36 Percentage 11.2% | Frequency 146 Percentage 45.5% | Frequency 130 Percentage 40.5% |

Table 7: Continued.

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|-------------------------------------|---------------------------------------|---------------------------------------|--|---|---|---|
| 15. Using Practical and Clear Terms | Frequency 0 Percentage 0% | Frequency 2 Percentage 0.6% | Frequency 3 Percentage 0.9% | Frequency 44 Percentage 13.7% | Frequency 162 Percentage 50.5% | Frequency 110 Percentage 34.3% |
| 16. Principal Allocates Time | Frequency 0 Percentage 0% | Frequency 3 Percentage 0.9% | Frequency 10 Percentage 3.1% | Frequency 25 Percentage 7.8% | Frequency 146 Percentage 45.5% | Frequency 137 Percentage 42.7% |
| 17. Principal Allocates Resources | Frequency 0 Percentage 0% | Frequency 2 Percentage 0.6% | Frequency 2 Percentage 0.6% | Frequency 21 Percentage 6.5% | Frequency 149 Percentage 46.4% | Frequency 147 Percentage 45.8% |
| 18. Principal Actively Participates | Frequency 2 Percentage 0.6% | Frequency 21 Percentage 6.5% | Frequency 25 Percentage 7.8% | Frequency 101 Percentage 31.5% | Frequency 116 Percentage 36.1% | Frequency 56 Percentage 17.4% |
| 19. Principal is Presenter | Frequency 11 Percentage 3.4% | Frequency 23 Percentage 7.2% | Frequency 65 Percentage 20.2% | Frequency 87 Percentage 27.1% | Frequency 100 Percentage 31.2% | Frequency 35 Percentage 10.9% |
| 20. Teacher is Presenter | Frequency 6 Percentage 1.9% | Frequency 22 Percentage 6.9% | Frequency 38 Percentage 11.8% | Frequency 99 Percentage 30.8% | Frequency 126 Percentage 39.3% | Frequency 30 Percentage 9.3% |
| 21. Have Time to Think | Frequency 0 Percentage 0% | Frequency 1 Percentage 0.3% | Frequency 9 Percentage 2.8% | Frequency 42 Percentage 13.1% | Frequency 175 Percentage 54.5% | Frequency 94 Percentage 29.3% |
| 22. Have Time to Apply | Frequency 0 Percentage 0% | Frequency 2 Percentage 0.6% | Frequency 2 Percentage 0.6% | Frequency 30 Percentage 9.3% | Frequency 162 Percentage 50.5% | Frequency 125 Percentage 38.9% |
| 23. Have Time to Discuss | Frequency 0 Percentage 0% | Frequency 2 Percentage 0.6% | Frequency 6 Percentage 1.9% | Frequency 47 Percentage 14.6% | Frequency 153 Percentage 47.7% | Frequency 113 Percentage 35.2% |
| 24. Follow-up Assistance | Frequency 1 Percentage 0.3% | Frequency 2 Percentage 0.6% | Frequency 4 Percentage 1.2% | Frequency 42 Percentage 13.1% | Frequency 158 Percentage 49.2% | Frequency 114 Percentage 35.5% |

Table 7: Continued

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|----------------------------|---------------------------------------|---------------------------------------|--|--|---|---------------------------------------|
| 25. Appropriate Evaluation | Frequency 10 Percentage 3.1% | Frequency 23 Percentage 7.2% | Frequency 46 Percentage 14.3% | Frequency 99 Percentage 30.8% | Frequency 112 Percentage 34.9% | Frequency 31 Percentage 9.7% |

In addition to the statements on the instrument, Section I involved four areas: the planning stage of staff development; the implementation stage of staff development; supporting of staff development; and the follow-up activities of staff development. Each area has two questions which asked participants to indicate the most important and the second most important characteristics in that area. The findings are shown below.

The most important characteristic in the planning stage of staff development was that staff development programs should be congruent with teachers' individual goals.

Among 311 respondents, 89 (28.6%) selected this characteristic (see Table 8).

Table 8: The Most Important Characteristic in the Planning Stage of Staff Development

| Characteristic | Frequency | Percentage |
|--|-----------|------------|
| Teachers Involvement | 37 | 11.9% |
| Prepare Teachers to Implement job responsibilities | 64 | 20.6% |
| Congruent with District Goals | 8 | 2.6% |
| Congruent with School Goals | 26 | 8.4% |
| Congruent with Individual Goals | 89 | 28.6% |
| Consider Limitations in advance | 87 | 28.0% |
| Total | 311 | 100.0% |

The second most important characteristic in the planning stage of staff development was that the staff development programs' purveyors should consider teachers' limitations in advance. Among 310 respondents, 85 (27.4%) selected this characteristic (see Table 9).

Table 9: The Second Most Important Characteristic in the Planning Stage of Staff Development

| Characteristic | Frequency | Percentage |
|--|-----------|------------|
| Teachers Involvement | 35 | 11.3% |
| Prepare Teachers to Implement job responsibilities | 54 | 17.4% |
| Congruent with District's Goals | 20 | 6.5% |
| Congruent with School's Goals | 50 | 13.9% |
| Congruent with Individual Goals | 66 | 18.3% |
| Consider Limitations in advance | 85 | 23.6% |
| Total | 310 | 100.0% |

The most important characteristic in the implementation stage of staff development was that staff development should focus on enhancing content knowledge. Among 310 respondents, 87 (28.1%) selected this characteristic (see Table 10).

Table 10: The Most Important Characteristic in the Implementation Stage of Staff Development

| Characteristic | Frequency | Percentage |
|---|-----------|------------|
| Conducted in Support and Collaborative Climate | 25 | 8.1% |
| Use Constructive Learning Approach | 18 | 5.8% |
| School Decides its Own Activities | 16 | 5.2% |
| Activities Designed for Adult Learners | 19 | 6.1% |
| Focus on Enhancing Content Knowledge | 87 | 28.1% |
| Focus on Helping Develop Understanding of the Most Useful Ways | 50 | 16.1% |
| Focus on Helping Understand How to Create Teaching and Learning Environment | 39 | 12.6% |
| Presenter is Knowledgeable | 35 | 11.3% |
| Presenter Uses Practical and Clear Terms | 21 | 6.8% |
| Total | 310 | 100% |

The second most important characteristic in the implementation stage of staff development was that staff development programs should focus on helping teachers develop an understanding of the most useful ways of representing the ideas of specific disciplines. Among 311 respondents, 56 (18.0%) selected this characteristic (see Table 11).

Table 11: The Second Most Important Characteristic in the Implementation Stage of Staff Development

| Characteristic | Frequency | Percentage |
|---|-----------|------------|
| Conducted in Support and Collaborative Climate | 16 | 5.1% |
| Use Constructive Learning Approach | 11 | 3.5% |
| School Decides its Own Activities | 24 | 7.7% |
| Activities Designed for Adult Learners | 13 | 4.2% |
| Focus on Enhancing Content Knowledge | 43 | 13.8% |
| Focus on Helping Develop Understanding of the Most Useful Ways | 56 | 18.0% |
| Focus on Helping Understand How to Create Teaching and Learning Environment | 51 | 16.4% |
| Presenter is Knowledgeable | 54 | 17.4% |
| Presenter Uses Practical and Clear Terms | 42 | 13.5% |
| Total | 310 | 100% |

The most important characteristic in the supporting of staff development was that the principal should allocate time necessary to implement staff development programs.

Among 311 respondents, 168 (54.0%) selected this characteristic (see Table 12).

Table 12: The Most Important Characteristic in the Supporting of Staff Development

| Characteristic | Frequency | Percentage |
|---|-----------|------------|
| Principal Allocates Time | 168 | 54.0% |
| Principal Allocates Resource | 107 | 34.4% |
| Principal Actively Participate | 10 | 3.2% |
| Principal Serves as Presenter | 13 | 4.2% |
| Principal Encourages Teachers to Serve as Presenter | 13 | 4.2% |
| Total | 311 | 100.0% |

The second most important characteristic in the supporting of staff development was that the principal should allocate resources necessary to implement staff development programs. Among 307 respondents, 139 (45.3%) selected this characteristic (see Table 13).

Table 13: The Second Most Important Characteristic in the Supporting of Staff Development

| Characteristic | Frequency | Percentage |
|---|-----------|------------|
| Principal Allocates Time | 89 | 29.0% |
| Principal Allocates Resource | 139 | 45.3% |
| Principal Actively Participate | 24 | 7.8% |
| Principal Serves as Presenter | 22 | 7.2% |
| Principal Encourages Teachers to Serve as Presenter | 33 | 10.7% |
| Total | 307 | 100.0% |

The most important characteristic in the follow-up activities of staff development was that teachers should have sufficient time to apply what they learned from staff development programs. Among 311 respondents, 115 (31.9%) selected this characteristic (see Table 14).

Table 14: The Most Important Characteristic in the Follow-up Activities of Staff Development

| Characteristic | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Time to Think | 78 | 25.1% |
| Time to Apply | 115 | 37.0% |
| Time to Discuss with Peers | 51 | 16.4% |
| Follow-up Assistance from School | 57 | 18.3% |
| Appropriate Evaluation | 9 | 2.9% |
| Total | 310 | 100.0% |

When asked to rate the second most important characteristic in the follow-up activities of staff development, "time to apply what they learned from staff development programs" was selected by more teachers than any other characteristic. Among 309 respondents, 78 (25.2%) selected this characteristic (see Table 15).

Table 15: The Second Most Important Characteristic in the Follow-up Activities of Staff Development

| Characteristic | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Time to Think | 55 | 17.8% |
| Time to Apply | 78 | 25.2% |
| Time to Discuss with Peers | 67 | 21.7% |
| Follow-up Assistance from School | 70 | 22.7% |
| Appropriate Evaluation | 38 | 12.3% |
| Total | 310 | 100.0% |

Tests of Hypotheses

Hypothesis 1: There was no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degrees and teaching levels.

Findings: As Table 16 indicates, the F ratio is 0.831 with an associated probability (P-Value) of 0.437. Therefore, the null hypothesis of no interaction was retained.

1a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelors degree, and masters degree).

Findings: As Table 16 indicates, the F ratio is 0.459 with an associated probability (P-Value) of 0.632. Therefore, the null hypothesis of no significant difference was retained.

1b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school.

Findings: As Table 16 indicates, the F ratio is 5.291 with an associated probability (P-value) of 0.022. Therefore, the null hypothesis of no significant difference was rejected. This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between elementary and junior high school teachers. Elementary school teachers had mean scores of 125.312 and junior high school teachers had mean scores of 121.977. Therefore, elementary school teachers had higher mean scores than junior high school teachers (see Table 17).

Hypothesis 2: There was no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degrees and teachers' teaching experience.

Findings: As Table 16 indicates, the F ratio is 0.659 with an associated probability (P-Value) of 0.655. Therefore, the null hypothesis of no significant difference was retained.

2a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelors degree, and masters degree).

Findings: As Table 16 indicates, the F ratio is 0.453 with an associated probability (P-Value) of 0.636. Therefore, the null hypothesis of no significant difference was retained.

2b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience (2-5 years, 6-10 years, 11-20 years, and beyond 21 years).

Findings: As Table 16 indicates, the F ratio is 1.463 with an associated probability (P-Value) of 0.225. Therefore, the null hypothesis of no significant difference was retained.

Hypothesis 3: There was no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between educational degrees and teachers' gender.

Findings: As Table 16 indicates, the F ratio is 1.233 with an associated probability (P-Value) of 0.293. Therefore, the null hypothesis of no significant interaction was retained.

3a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelors degree, and masters degree).

Findings: As Table 16 indicates, the F ratio is 0.459 with an associated probability (P-Value) of 0.633. Therefore, the null hypothesis of no significant difference was retained.

3b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender.

Findings: As Table 16 indicates, the F ratio is 4.194 with an associated Probability (P-Value) of 0.041. Therefore, the null hypothesis of no significant difference was rejected. This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between male teachers and female teachers. Female teachers had mean scores of 124.854 and male teachers had mean scores of 121.808. Therefore, female teachers had higher mean scores than male teachers (see Table 17).

Hypothesis 4: There was no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' teaching experience.

Findings: As Table 16 indicates, the F ratio is 0.364 with an associated probability (P-Value) of 0.779. Therefore, the null hypothesis of no significant interaction was retained.

4a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school.

Findings: As Table 16 indicates, the F ratio is 4.653 with an associated probability (P-value) of 0.032. Therefore, the null hypothesis of no significant difference was rejected. This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between elementary and junior high school teachers. Elementary school teachers had mean scores of 125.312 and junior high school teachers had mean scores of 121.977. Therefore, elementary school teachers had higher mean scores than junior high school teachers (see Table 17).

4b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience (2-5 years, 6-10 years, 11-20 years, and beyond 21 years).

Findings: As Table 16 indicates, the F ratio is 1.541 with an associated probability (P-Value) of 0.204. Therefore, the null hypothesis of no significant difference was retained.

Hypothesis 5: There is no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' gender.

Findings: As Table 16 indicates, the F ratio is 0.015 with an associated probability (P-Value) of 0.903. Therefore, the null hypothesis of no significant interaction was retained.

5a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school.

Findings: As Table 16 indicates, the F ratio is 5.528 with an associated probability (P-value) of 0.019. Therefore, the null hypothesis of no significant difference was rejected.

This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between elementary and junior high school teachers. Elementary school teachers had mean scores of 125.312 and junior high school teachers had mean scores of 121.977. Therefore, elementary school teachers had higher mean scores than junior high school teachers (see Table 17).

5b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender.

Findings: As Table 16 indicates, the F ratio is 5.011 with an associated Probability (P-Value) of 0.026. Therefore, the null hypothesis of no significant difference was rejected. This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between male teachers and female teachers. Female teachers had mean scores of 124.854 and male teachers had mean scores of 121.808. Therefore, female teachers had higher mean scores than male teachers (see Table 17).

Hypothesis 6: There was no significant interaction on perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching experiences and teachers' gender.

Findings: As Table 16 indicates, the F ratio is 0.357 with an associated probability (P-Value) of 0.784. Therefore, the null hypothesis of no significant interaction was retained.

6a. There is no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience.

Findings: As Table 16 indicates, the F ratio is 1.445 with an associated probability (P-Value) of 0.230. Therefore, the null hypothesis of no significant difference was retained.

6b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender.

Findings: As Table 16 indicates, the F ratio is 4.412 with an associated Probability (P-Value) of 0.036. Therefore, the null hypothesis of no significant difference was rejected. This indicates there was significant difference in perceptions of staff development as a vehicle for improving teaching skills between male teachers and female teachers Female

teachers had mean scores of 124.854 and male teachers had mean scores of 121.808. Therefore, female teachers had higher mean scores than male teachers (see Table 17).

Table 16: Summary of Analysis of Variance

| Variable | Df | MS | F Ratio | P-Value |
|-------------|----|---------|--------------|-------------|
| Ho1: | | | | |
| Degree | 2 | 72.803 | .459 | .632 |
| Level | 1 | 839.317 | 5.291 | .022 |
| Interaction | 2 | 131.800 | .831 | .437 |
| Ho2: | | | | |
| Degree | 2 | 72.803 | .453 | .636 |
| Experience | 3 | 235.128 | 1.463 | .225 |
| Interaction | 5 | 105.916 | .659 | .655 |
| Ho 3: | | | | |
| Degree | 2 | 72.803 | .459 | .633 |
| Gender | 1 | 665.975 | 4.194 | .041 |
| Interaction | 2 | 195.733 | 1.233 | .293 |
| Ho4: | | | | |
| Level | 1 | 737.010 | 4.653 | .032 |
| Experience | 3 | 244.149 | 1.541 | .204 |
| Interaction | 3 | 57.646 | .364 | .779 |
| Ho5: | | | | |
| Level | 1 | 864.362 | 5.528 | .019 |
| Gender | 1 | 783.562 | 5.011 | .026 |
| Interaction | 1 | 2.348 | .015 | .903 |
| Ho6: | | | | |
| Experience | 3 | 229.337 | 1.445 | .230 |
| Gender | 1 | 700.016 | 4.412 | .036 |
| Interaction | 3 | 56.668 | .357 | .784 |

***Bold** indicates significance at the 0.05 level.

Table 17: Mean Scores of Teaching levels and Gender

| Independent Variables | Mean | S.D. | N |
|--|---------|--------|-----|
| Teaching Levels (Elementary School) | 125.312 | 11.561 | 189 |
| Teaching Levels (Junior High School) | 121.977 | 13.877 | 132 |
| Gender (Male) | 121.808 | 1.234 | 104 |
| Gender (Female) | 124.854 | 0.854 | 217 |

CHAPTER 4

SUMMARY, DISCUSSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to summarize the study, present the overall findings and discussion, and provide recommendations for future application and future research. There are four sections in this chapter: the introduction; the summary of the findings; the discussion; and the applications and recommendations for further study.

Introduction

The purpose of this study was to examine Taiwan teachers' perceptions of staff development as a vehicle for improving teaching skills. Over the years, Taiwan has applied Western nations' educational theories and models to fit its educational system. In Western nations, researchers have determined that staff development can improve teachers' teaching skills (French, 1997). To verify whether or not Western nations' educational theories concerning staff development are applicable in Taiwan, this study examined the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving teaching skills. In addition, this study examined the difference or interaction in perception of staff development as a vehicle for improving teaching skills based on teachers' educational degree, level of teaching (elementary or junior high school), years of teaching experience, and gender.

The data for this study were collected in Tainan City during November and December, 1999. The samples in this study included 200 public elementary school teachers and 158 public junior high school teachers who were all teaching in Tainan City. A survey entitled "Tainan City Teacher Perceptions of Staff Development As a Vehicle for Improving Teaching Skills" (Teacher Perceptions Survey) was used to collect the independent variables of teachers' educational degrees, teachers' teaching experience, and teachers' gender. The other independent variable of teachers' teaching levels was collected from Tainan City Department of Education when the researcher randomly selected the sample. The dependent variable of teacher perceptions of staff development as a vehicle for improving teaching skills was collected from the survey. The survey included five sections. Section I had four areas: the planning stage of staff development; the implementation stage of staff development; the supporting of staff development; and the follow-up activities of staff development. Section I included 25 statements that were designed by the researcher after reviewing related literature and modifying Dr. Criss' instrument that was designed in 1990. Each statement included one characteristic of effective staff development. At the end of each statement, there was a six-point Likert scale. From the six-point Likert scale, the sample teachers circled the number to express their level of disagreement or agreement with each statement. In addition, Section I also asked teachers to reply as to the most important and the second most important characteristics they perceived in each area.

Section II, III, and IV were used to collect the independent variables of educational degree, teaching experience, and gender. Participating teachers answered by

checking an appropriate box. Section V asked if the participants wanted to receive an executive summary of the study results by checking an appropriate box.

The researcher found a teacher representative in each school that had one or more sampled teachers. The teacher representatives dispatched, collected, and returned the survey to the researcher. Among the 358 sampled teachers, 333 responded with 321 useable responses. The useable return rate was 89.66%. Among these 321 teachers, 39 held an associate degree, 225 held a bachelor's degree, and 57 held a master's degree. Among these 321 teachers, 36 had taught from 2 to 5 years, 51 had taught from 6 to 10 years, 110 had taught from 11 to 20 years, and 124 had taught beyond 21 years. Among these 321 teachers, 104 were males, and 217 were females. Among these 321 teachers, 189 taught in elementary school, and 132 taught in junior high school.

Question 1 of the study was answered descriptively by calculating the mean score scores of the responses to the 25 statements and describing the findings. The researcher also calculated the frequency and percentage of responses to each of the six points of the Likert scale for all items of the Taiwan teacher perceptions scale.

Hypotheses 1 through 6 were tested using a two-way Analysis of Variance (two-way ANOVA): A two-way ANOVA is used to investigate the interaction on two independent variables and to determine if the independent variables have a significant difference in mean scores. For the purpose of this study, a two-way ANOVA was used to examine the interaction on independent variables. If significant interaction was found, it was interpreted. If no significant interaction was found, the researcher went on to test for

main effects. For the post-hoc comparison, Newman-Keuls was chosen for use because it provides the best balance between making a Type I or a Type II error. To get a balance between making a Type I or a Type II error, Newman-Kuels post hoc comparison was used to test the main effect.

Questions 8 through 15 were answered descriptively by determining which items, in each area, were chosen as most important and second most important. The purpose of this part was to determine teachers' perceptions of what characteristic was the most important to them.

Summary of Findings

The following is a summary of the major findings of the descriptive questions of this study:

1. Overall, there were 89.7% of teachers who agreed or strongly agreed that staff development is a vehicle for improving teaching skills.
2. There were 86.6% of teachers who agreed or strongly agreed that if teacher representatives are involved in the planning and decision-making processes of staff development programs, staff development can improve teaching skills.
3. There were 82.6% of teachers who agreed or strongly agreed that if staff development programs focus on preparing teachers to implement their job responsibilities, staff development can improve teaching skills.
4. There were 67.3% of teachers who agreed or strongly agreed that if staff development programs are congruent with the district's goals, staff development can improve teaching skills.

5. There were 76.4% of teachers who agreed or strongly agreed that if staff development programs are congruent with the school's goals, staff development can improve teaching skills.
6. There were 89.4% of teachers who agreed or strongly agreed that if staff development programs are congruent with the teacher's individual goals, staff development can improve teaching skills.
7. There were 88.5% of teachers who agreed or strongly agreed that if staff development programs' purveyors consider participants' limitations in advance, staff development can improve teaching skills.
8. There were 91.2% of teachers who agreed or strongly agreed that if staff development programs are conducted in a supportive and collaborative climate, staff development can improve teaching skills.
9. There were 54.2% of teachers who agreed or strongly agreed that if staff development programs apply constructivist learning approaches, staff development can improve teaching skills.
10. There were 75.7% of teachers who agreed or strongly agreed that if each school can decide its own staff development programs, staff development can improve teaching skills.
11. There were 77.6% of teachers who agreed or strongly agreed that if staff development programs apply activities designed for adult learners, staff development can improve teaching skills.

12. There were 85.6% of teachers who agreed or strongly agreed that if staff development programs focus on enhancing teachers' content knowledge, staff development can improve teaching skills.
13. There were 88.1% of teachers who agreed or strongly agreed that if staff development programs focus on helping teachers develop an understanding of the most useful ways of representing the ideas of specific disciplines, staff development can improve teaching skills.
14. There were 77.6% of teachers who agreed or strongly agreed that if staff development programs focus on helping teachers understand how to create and maintain an appropriate teaching and learning environment, staff development can improve teaching skills.
15. There were 86.0% of teachers who agreed or strongly agreed that if the staff development program presenter is knowledgeable in the field he/she is presenting, staff development can improve teaching skills.
16. There were 84.8% of teachers who agreed or strongly agreed that if the staff development program presenter uses clear and practical terms to describe the content, staff development can improve teaching skills.
17. There were 88.2% of teachers who agreed or strongly agreed that if the principal allocates time necessary to implement staff development, staff development can improve teaching skills.

18. There were 92.2% of teachers who agreed or strongly agreed that if the principal allocates the resources necessary to implement staff development, staff development can improve teaching skills.
19. There were 53.5% of teachers who agreed or strongly agreed that if the principal actively participates in staff development programs, staff development can improve teaching skills.
20. There were 42.1% of teachers who agreed or strongly agreed that if the principal serves as the staff development presenter, staff development can improve teaching skills.
21. There were 48.6% of teachers who agreed or strongly agreed that if the principal encourages teachers to serve as staff development presenters, staff development can improve teaching skills.
22. There were 83.8% of teachers who agreed or strongly agreed that if teachers have sufficient time to think about what they learned from staff development programs, staff development can improve teaching skills.
23. There were 89.4% of teachers who agreed or strongly agreed that if teachers have sufficient time to apply what they learned from staff development programs, staff development can improve teaching skills.
24. There were 82.9% of teachers who agreed or strongly agreed that if teachers have sufficient time to discuss what they learned from staff development programs with peers, staff development can improve teaching skills.

25. There were 84.7% of teachers who agreed or strongly agreed that if the school provides necessary follow-up assistance after staff development programs, staff development can improve teaching skills.
26. There were 44.6% of teachers who agreed or strongly agreed that if schools appropriately evaluate what teachers learned from staff development programs, staff development can improve teaching skills.
27. The most important characteristic in the planning stage of staff development was that staff development programs should be congruent with teacher's individual goals.
28. The second most important characteristic in the planning stage of staff development was that staff development program purveyors should consider teachers' limitations in advance.
29. The most important characteristic in the implementation stage of staff development was that staff development should focus on enhancing teachers' content knowledge.
30. The second most important characteristic in the implementation stage of staff development was that staff development should focus on helping teachers develop an understanding of the most useful ways of representing the ideas of specific disciplines.
31. The most important characteristic in supporting of staff development was that the principal should allocate the time necessary to implement staff development programs.
32. The second most important characteristic in supporting of staff development was that the principal should allocate the resources necessary to implement staff development programs.

33. The most important characteristic in follow-up activities of staff development was that teachers should have time to apply what they learned from staff development programs.
34. When asked to rate the second most important characteristic in follow-up activities of staff development, again, "time to apply what they learned from staff development programs" was selected by more teachers than any other characteristic.

The following is a summary of the major findings of the hypothesis tests of this study:

Hypothesis 1 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degrees and teachers' teaching levels. The analysis indicated that the hypothesis should be retained.

1a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree). The analysis indicated that the hypothesis should be retained.

1b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school. The analysis indicated that the hypothesis should be rejected. With a mean score of 125.312 for elementary school teachers and of 121.977 for junior high school, elementary school teachers' had higher mean scores than junior

high school teachers. This indicates that elementary school teachers have a stronger belief in the value of staff development than junior high school teachers.

Hypothesis 2 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degrees and teachers' teaching experience. The analysis indicated that the hypothesis should be retained.

2a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree). The analysis indicated that the hypothesis should be retained.

2b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience (2-5 years, 6-10 years, 11-20 years, and beyond 21 years). The analysis indicated that the hypothesis should be retained.

Hypothesis 3 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degrees and gender. The analysis indicated that the hypothesis should be retained.

3a. There was no significant difference in teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers with different educational degrees (associate degree, bachelor's degree, and master's degree). The analysis indicated that the hypothesis should be retained.

3b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. The analysis indicated that the hypothesis should be rejected. With a mean score of 121.808 for male teachers and of 124.854 for female teachers, female teachers had higher mean scores than male teachers. This indicates that female teachers have a stronger belief in the value of staff development than male teachers.

Hypothesis 4 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' teaching experience. The analysis indicated that the hypothesis should be retained.

4a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers at an elementary school and teachers at a junior high school. The analysis indicated that the hypothesis should be rejected. With a mean score of 125.312 for elementary school teachers and of 121.977 for junior high school, elementary school teachers' had higher mean scores than junior high school teachers. This indicates that elementary school teachers have a stronger belief in the value of staff development than junior high school teachers.

4b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experience (2-5 years, 6-10 years, 11-20 years, and beyond 21 years). The analysis indicated that the hypothesis should be retained.

Hypothesis 5 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching levels and teachers' gender. The analysis indicated that the hypothesis should be retained.

5a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills between teachers who teach at an elementary school and teachers who teach at a junior high school. The analysis indicated that the hypothesis should be rejected. With a mean score of 125.312 for elementary school teachers and of 121.977 for junior high school teachers, elementary school teachers had higher mean scores than junior high school teachers. This indicates that elementary school teachers have a stronger belief in the value of staff development than junior high school teachers.

5b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. The analysis indicated that the hypothesis should be rejected. With a mean score of 121.808 for male teachers and of 124.854 for female teachers, female teachers had higher mean scores than male teachers. This indicates that female teachers have a stronger belief in the value of staff development than male teachers.

Hypothesis 6 stated that there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' teaching experience and teachers' gender. The analysis indicated that the hypothesis should be retained.

6a. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their teaching experiences. The analysis indicated that the hypothesis should be retained.

6b. There was no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their gender. The analysis indicated that the hypothesis should be rejected. With a mean score of 121.808 for male teachers and of 124.854 for female teachers, female teachers had higher mean scores than male teachers. This indicates that female teachers have a stronger belief in the value of staff development than male teachers.

Discussions

Descriptive Questions

Based on the analysis of the data used to answer each research question, several conclusions and discussions were drawn about the 321 teachers' perceptions of staff development as a vehicle for improving teaching skills. Tainan City public elementary and junior high school teachers agreed that staff development is a vehicle for improving teaching skills. This result is consistent with Western nations' studies and research. Criss (1990) found that Mississippi teachers perceived staff development as a vehicle for school improvement based on the Mississippi model of staff development programs. In a specific staff development program called Active Mathematics Teaching which was developed and validated by Good, Grouws, and Ebmeier at the University of Missouri, they found that the program increased teachers' application of active teaching behaviors

and subsequently also improved students' math achievement (Good, Grouws, and Ebmeier, 1983). Gall, Fielding, Schalock, Charters, and Wilczynski (1984) found that educators who received staff development programs used particular instructional approaches more frequently than those who did not receive staff development programs. More significantly, the students of the trained teachers had higher scores on achievement tests than those students of non-trained teachers. In addition, King's (1987) study found that teachers strongly agreed that professional development programs could improve teachers' teaching skills.

When the researcher continued to examine the degree to which Tainan City public elementary and junior high school teachers perceived staff development as a vehicle for improving teaching skills item-by-item, it was found that most of the characteristics of effective staff development programs that were established in Western nations were acceptable and applicable in Taiwan's educational system. However, three characteristics were not accepted by Taiwan's teachers (see Table 7). The levels "agree" or "strongly agree" that staff development is a vehicle for improving teaching skills were both less than 50%. These three characteristics are: (1) the principal serves as the staff development presenter (135 respondents, or 42.1%); (2) the principal encourages teachers to serve as the staff development presenter (156 respondents, or 48.6%); and (3) the school provides appropriate evaluation after staff development programs (143 respondents, or 44.6%).

These findings are not consistent with Western nations' assumptions and statements. As Levine (1989) stated, the principal has to be the major model and support

for the adults in the school. Much literature also indicated that the principal's instructional leadership may help teachers to "overcome their resistance to implementing the program's objectives" (p.10). Teschke (1996) indicated that an effective principal is the leader of leaders. The principal should empower his/her staff members to show leadership themselves. According to Sergiovanni (1994), the effective principal preaches, teaches, and encourages teachers. Sparks (1992) also pointed out that the principal needs to encourage teachers to share what they learned from activities.

The reason Taiwan teachers did not perceive that the principal serving as staff development presenter will improve teaching skills may be from a distrust of the principal. In Taiwan, the principal never teaches in class after he/she serves as a principal. After passing the principalship examination, principal candidates go to Taipei to receive a 10-week training program. This training program is like a principal's staff development program or orientation program. The principal learns leadership and administration theories from the training program. After the training program, the principal only needs to implement administrative affairs in his/her school. Some principals may serve as a principal for 10 years or longer and not need to learn newer teaching knowledge. During the principalship, principals are not required to participate in staff development programs. In other words, the principal may not know which teachers really need improvement in their instructional skills. If the principal does not know what teachers really want, the content the principal presents may not meet teachers' needs. Then, teachers do not perceive that the principal who serves as the staff development presenter can improve their teaching skills. This is related to statement 15 that stated that 86.0% of teachers

agreed or strongly agreed that staff development program presenters must be knowledgeable in the field he/she is presenting.

Due to time constraints, teachers do not agree that they should serve as staff development presenters. Since 1998, the Taiwan Department of Education mandated that each class should have no more than 35 students. After 1998, all new classes should not contain more than 35 students. For financial reasons, there are still some old classes that were established before 1998 that have more than 35 students today. The teachers not only need to prepare teaching materials, organize the curriculum context, correct students' homework, and manage students' discipline problems, but also need to implement administrative affairs. Teachers have too large a workload to prepare what they need to present to their peers. That may be why 83.8% respondents agreed and strongly agreed that if they have time to think about what they learned from staff development, staff development can improve teaching skills. In addition, 89.4% of the respondents agreed and strongly agreed that if they have time to apply what they learned from staff development, staff development can improve teaching skills.

In the follow-up activities of staff development, respondents also had a low level of agreement (143 respondents, or 44.6%) to when the school provides appropriate evaluation after the training, staff development can improve teaching skills. This finding is different from Western nations' assumptions and findings. As the MSDE (1985) stated, staff development should provide follow-up evaluation to enhance teachers' learning. Newsome (1997) also indicated that effective staff development programs should provide follow-up evaluation. The NSDC (1994) proposed that effective staff development

programs require an evaluation process that is ongoing and focuses on all levels of the organization. The reason teachers had a low level of agreement with this characteristic may be from the pressure of evaluation itself. Teachers want to learn. However, the evaluation will give them pressure to prepare. Teachers are selfish before an innovation is conducted. They consider the questions such as: "Will this innovation influence my relations with peers?"; "Will this innovation take too much of my time?"; "Will this innovation have negative effects toward me?". Taiwan teachers may believe a follow-up evaluation will have a negative effect on themselves. Therefore, Taiwan teachers perceived that the follow-up evaluation will not improve their teaching skills.

The findings of the most important and the second most important characteristics in each area are congruent with Western nations' change theory. In change theory, the teacher is the center and the most important element of an educational reform. Therefore, Taiwan teachers perceived that staff development programs should be congruent with their individual goals and should consider their limitations in advance. Teachers perceived that staff development should focus on enhancing their content knowledge and developing the most useful teaching strategy. Educational innovation is a process, not an event. Teachers need time and resources to implement and adapt to the new innovation. Therefore, teachers perceived that the principal should provide time and resources necessary to implement staff development programs. In addition, teachers perceived that schools should allow them time to apply what they learned after training.

Hypotheses Tests

All interaction hypotheses were retained. That means there was no significant interaction on teachers' perceptions of staff development as a vehicle for improving teaching skills between teachers' educational degree and teaching levels; between teachers' educational degree and teaching experience; between educational degree and gender; between teaching levels and teaching experience; between teaching levels and gender; and between teaching experience and gender. After the post hoc test, the researcher found no significant difference in perceptions of staff development as a vehicle for improving teaching skills among teachers based on their educational degree and based on their teaching experience. However, the researcher found a significant difference in perceptions of staff development as a vehicle for improving teaching skills based on teachers' teaching levels and based on teachers' gender.

Educational Degree

No significant differences were found in teachers' perceptions based on educational degrees they held. This means that all teachers who have different educational degrees have similar perceptions of staff development as a vehicle for improving teaching skills. Taiwan teachers who have different educational degrees agreed or strongly agreed that staff development is a vehicle for improving teaching skills. The result is congruent with Davis' (1984), Mullins' (1997), and Pisetsky's (1979), related studies. These three researchers conducted teachers' staff development needs

assessment and found no significant difference in teachers' perceptions based on different educational degrees.

Teaching Levels

Significant differences were found in perceptions based on different teaching levels. Elementary school teachers had higher mean scores than junior high teachers. This means that elementary school teachers had more positive perceptions of staff development as a vehicle for improving teaching skills and indicates that elementary school teachers have greater motivation for receiving staff development programs than junior high school teachers. This result is congruent with Asin-Manley's (1996) study that found elementary school teachers have more positive perceptions of staff development as an essential component to achieving school purposes. Davis (1984) also found elementary school teachers have significantly higher perception scores in staff development needs assessment than secondary school teachers.

Teaching Experience

No significant differences were found in perceptions based on different teaching experience. This means that even though teachers have different teaching experience, they have similar perceptions of staff development as a vehicle for improving teaching skills. Taiwan teachers who have different teaching experience agreed or strongly agreed that staff development is a vehicle for improving teaching skills. This result is congruent with Mullins' (1997) study. In examining teachers' perceptions of staff development in

block scheduled programs; she found no difference in teachers' perceptions based on their years of teaching experience. However, this result is different from Davis' (1984) study. In examining teachers' needs for in-service training, she found that years of teaching experience appeared to be an important variable for perceptions of staff development. In her study, teachers who have taught for more than 31 years have significantly higher perception scores in staff development needs from teachers who have taught from 1-10 years, 11-20 years, and 21-30 years.

Gender

Significant differences were found in perceptions based on gender. Female teachers had higher mean scores than male teachers. This means female teachers had more positive perceptions of staff development as a vehicle for improving teaching skills and indicates that female teachers have greater motivation for receiving staff development programs than male teachers. This result is different from Davis' (1984), Pisetsky's (1979), and Underwood and Underwood's (1977) findings. These studies claimed that the gender of the teacher is not a significant factor in teachers' perceptions in regard to staff development.

Recommendations

Based on the findings of this study, the following recommendations are submitted for future application and future research:

Future Application

In general, the findings of this study show that teachers perceive staff development as a vehicle for improving teaching skills. There is a strong need for staff development for Taiwan teachers. However, to deal with the problems of the principal not being considered as a knowledgeable presenter in staff development, the principal should learn how to be an instructional leader and staff developer in current educational settings. In addition, educational departments should create staff development programs for principals. Not only do teachers need to learn, the principal also needs to learn. The principal needs to know what staff development is and to prepare him/herself to be not only a school manager, but also an instructional leader.

To encourage teachers and other school personnel to participate in staff development programs to serve as the presenter, the principal may consider a step-by-step strategy. The following is the strategy:

- (1) Find one or two volunteer teachers to serve as staff development program presenters;
- (2) Give some incentives or rewards to encourage these volunteer teachers;
- (3) Choose the topic that teachers feel familiar with;
- (4) Appoint a short-time (15- 20 minutes) presentation period at the early stage; and,
- (5) Increase the presentation period gradually if necessary.

This strategy may decrease teachers' time limitation. After teachers enjoy the staff development activities, they will want to be presenters. The time of preparation is no longer a problem.

To deal with the low level of agreement in using appropriate evaluation to improve teaching skills, one-legged conferencing and open-ended statements of concern can be used to minimize teachers' resistance. One-legged conferencing is an informal interview that only takes a few minutes to evaluate what teachers' learned from staff development programs. The principal may ask questions such as: "How was the workshop?"; "Did you find something interesting from the program?"; "Will you apply what you learned from staff development activities in your classroom, why or why not?" at any place or any time. These quick questions do not take too much of the teachers' time. Open-ended statements of concern occupy a few minutes and allow teachers to describe in writing their comments about staff development in which they participated. One-legged conferencing and open-ended statements of concern occupy a very limited amount of time, normally from two to ten minutes, for evaluating what teachers learned from staff development programs. In addition, teachers do not need to spend too much time preparing the answer. It is an appropriate method to do follow-up evaluation.

Elementary and female school teachers had higher perception scores in staff development as a vehicle for improving teaching skills than junior high and male school teachers. They represent a target population that supports staff development programs. When implementing staff development programs in the future, one can anticipate conceptual support from elementary and female school teachers.

Future Research

The following recommendations are made:

- (1) Examine the actual practice of staff development occurring at schools. Since this study only examined the ideal practice of staff development as perceived by teachers, the researcher recommends that other researchers examine the actual practice in the future.
- (2) Examine the differences between different subject teachers. This study did not set teachers' teaching subjects as an independent variable. From different subject teachers' perceptions, there may be some different findings.
- (3) Examine the difference between public school and private school teachers. This study did not involve private school teachers. Private schools receive few resources from the government. Private school teachers may have different perceptions of staff development and comments when the government requires them to participate in staff development programs.
- (4) Examine students' perceptions of teachers' improvement in teaching after participating in staff development programs. Teachers perceived staff development as a vehicle for improving teaching skills. However, will their teaching performance really change? Will students feel the differences? Examining students' perceptions and their learning outcomes such as test scores may be interesting.
- (5) Examine the difference between urban teachers and rural teachers. Usually, urban schools have more resources than rural schools. For the different resource allocation in the educational system, urban teachers' perceptions of staff development may be different from rural teachers' perceptions of staff development.
- (6) Let the sampled teachers return the instrument directly to the researcher.

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APPENDICES

APPENDIX A

DR. CRISS' INSTRUMENT

MISSISSIPPI TEACHER PERCEPTIONS OF STAFF DEVELOPMENT
AS A VEHICLE FOR SCHOOL IMPROVEMENT

- I. The following statements relate to your perceptions of staff development in your particular school setting. According to the following scale, please write the number in the blank by each statement that indicates your level of agreement or disagreement.

- | | |
|--------------------------|-----------------------------|
| 1. I strongly agree | 4. I would tend to disagree |
| 2. I agree | 5. I disagree |
| 3. I would tend to agree | 6. I strongly disagree |

Staff development in my school—

1. _____ prepares me to implement the best practices related to carrying out my job responsibilities.
2. _____ prepares me to implement research findings related to carrying out my responsibilities.
3. _____ is based upon clear, well-understood, specific goals and objectives that are congruent with school goals.
4. _____ is based upon clear, well-understood, specific goals and objectives that are congruent with my personal goals.
5. _____ focuses on actual school goals, problems, needs, and plans.
6. _____ is conducted, whenever feasible, in the school setting.
7. _____ is conducted in a supportive climate of trust, peer support, open communication and staff commitment to clearly understood institutional goals.
8. _____ has three major components: a) school climate; b) professional skills; c) professional knowledge.
9. _____ is cooperatively developed by those involved in and affected by the programs.
10. _____ emphasizes the use of rewards, such as opportunity, decision making and advancement, upon an individual's successful completion of the district staff development plan.
11. _____ is based on the assessed needs of the participants.

12. _____ is supported by building level administrators through their participation in staff development activities.
13. _____ is supported by district level administrators through their participation in staff development activities.
14. _____ provides for follow-up and assistance to educators as they use their new skills and understanding in the work setting after they have been trained.

II. My teaching Level is (check one)

_____ grades k-6

_____ grades 7-12; if so, subject area _____

Number of years of teaching experience _____

III. My school district has an (check one)

_____ elected superintendent

_____ appointed superintendent

IV. Please circle yes or no

1. yes no I have, or know of a peer who has, served on the district or building staff development committees.
2. yes no I have completed a needs assessment for the purpose of developing staff development plans.
3. yes no I am asked to evaluate individual staff development training sessions.
4. yes no I have, or know of a peer who has, served as a staff development presenter.
5. yes no My building principal allocates the time necessary for the successful implementation of staff development activities.
6. yes no My building principal allocates the resources necessary for the successful implementation of staff development activities.
7. yes no My building principal actively participate in staff development activities that are designed for all school personnel.

8. yes no My building principal has served as a staff development presenter.
9. yes no My building principal encourages non-administrative personnel to serve as staff development presenters.
10. yes no In our building, staff development consists of several sessions throughout the year based on a common theme.
11. yes no Staff development activities in our building are based on the expressed goals and objectives of the school.
12. yes no Staff development training activities in our school include an implementation activity whereby the participants are expected to conduct follow-through activities in the classroom based on the information presented in the staff development session.

APPENDIX B

DR. CRISS' PERMISSION

P.O. Box 1254
Hayesville, NC 28904
February 23, 1999

Cheng-Yu Hsieh
605 Peter Koch Tower
Bozeman, MT 59715

Dear Cheng-Yu Hsieh:

It is my pleasure to grant you permission to use my doctoral dissertation survey instrument. Please feel free to modify it in whatever manner suits the need of your study. Best wishes.

Sincerely,

Gail D. Criss

Gail D. Criss

APPENDIX C

TAINAN CITY DEPARTMENT OF EDUCATION'S PERMISSION

台南市政府教育局同意謝振裕先生選用台南市國民中小學教師為樣本,以從事教師
對在職進修為提升教學技能的媒介之看法的研究.

此致

謝振裕先生

台南市政府教育局

局長：王水文

APPENDIX D

TRANSLATION REVIEWERS AND EXPERT PANEL

The Panel of Judges Used to Establish the Validity of the "TAINAN CITY TEACHER PERCEPTIONS OF STAFF DEVELOPMENT AS A VEHICLE FOR IMPROVING TEACHING SKILLS SURVEY."

- Dr. Wang, Zong-Tsai: Dean of Graduate School of National Tainan Teachers College. Tainan City, Taiwan (also translation reviewer, graduated from University of Northern Colorado).
- Dr. Hwang, Tsong-Hsiang: Director of the President's Office of National Tainan Teachers College. Tainan City, Taiwan (also translation reviewer, graduated from the Ohio State University).
- Mr. Shih, Hong-Yan: Assistant Superintendent on Tainan City Department of Education. Tainan City, Taiwan.

APPENDIX E

DRAFT INSTRUMENT: BOTH ENGLISH AND CHINESE VERSION

TAINAN CITY TEACHER PERCEPTIONS OF STAFF DEVELOPMENT AS A VEHICLE FOR IMPROVING TEACHING SKILLS SURVEY

In order to provide information for holding staff development activities, the purpose of this instrument is to get your perceptions of staff development as a vehicle for improving teachers' teaching skills. There are five sections in this instrument. Section I includes 21 statements. Each statement includes one characteristic of staff development. There is a 6-point scale on each statement. Please circle the number by the statement that indicates your level of disagreement or agreement. Section II, III, and IV include questions that are related to your individual background. Please place a check mark in front of the answers that best express your individual background. Section V asks you whether you want to receive an executive summary of the study results or not. If you wish to receive a copy of the results, please check the YES box.

[Section I]

In the following six-point Likert scale, indicate your level of disagreement or agreement with each statement. According to your perceptions, do you think staff development programs that include the noted characteristics will improve your teaching skills? Please circle the number at the end of each statement. In addition, this section divides staff development into planning, implementation, supporting, and follow-up areas. According to your perceptions, please answer the most important and the second most important characteristics at the end of each area.

- | | |
|-------------------------------|----------------------------|
| 1. I STRONGLY DISAGREE | 4. I SOMEWHAT AGREE |
| 2. I DISAGREE | 5. I AGREE |
| 3. I SOMEWHAT DISAGREE | 6. I STRONGLY AGREE |

PLANNING OF STAFF DEVELOPMENT

1. My teaching skills will be improved if teacher representatives are involved in the planning or decision-making process of staff development.....1 2 3 4 5 6

2. My teaching skills will be improved if staff development programs focus on preparing teachers to implement the best practices related to carrying out their job responsibilities.....1 2 3 4 5 6

3. My teaching skills will be improved if staff development programs are based upon clear, well-understood, specific goals and objectives that are congruent with the vision, the mission, and the goals of Tainan City's Department of Education.....1 2 3 4 5 6

Do you remember the scale that indicates your level of disagreement or agreement?

- | | |
|-------------------------------|----------------------------|
| 1. I STRONGLY DISAGREE | 4. I SOMEWHAT AGREE |
| 2. I DISAGREE | 5. I AGREE |
| 3. I SOMEWHAT DISAGREE | 6. I STRONGLY AGREE |

4. My teaching skills will be improved if staff development programs are based upon clear, well-understood, specific goals and objectives that are congruent with school goals.....1 2 3 4 5 6

5. My teaching skills will be improved if staff development programs are based upon clear, well-understood, specific goals and objectives that are congruent with personal goals.....1 2 3 4 5 6

6. My teaching skills will be improved if the staff development program purveyor considers the limitations such as participants' schedule, transportation, food, and living location in advance.....1 2 3 4 5 6

Among statement 1 to statement 6, which characteristic is the *most important*? _____

Among statement 1 to statement 6, which characteristic is the *second most important*? _____

IMPLEMENTATION OF STAFF DEVELOPMENT

7. My teaching skills will be improved if staff development programs are conducted in a supportive, open, collaborative, informal, trustful, and respectful climate.....1 2 3 4 5 6

8. My teaching skills will be improved if staff development programs focus on constructivist learning methods such as peer coaching, action research, journal writing, small-group problem solving.....1 2 3 4 5 6

9. My teaching skills will be improved if my school can determine its own staff development activities rather than having uniform activities occurring throughout the whole city.....1 2 3 4 5 6

10. My teaching skills will be improved if staff development programs include a variety of activities designed for adult learners such as the use of prior experiences and real world applications.....1 2 3 4 5 6

11. My teaching skills will be improved if staff development programs focus on enhancing teachers' repertoire of teaching skills and content knowledge.....1 2 3 4 5 6

Do you remember the scale that indicates your level of disagreement or agreement?

- | | |
|------------------------|---------------------|
| 1. I STRONGLY DISAGREE | 4. I SOMEWHAT AGREE |
| 2. I DISAGREE | 5. I AGREE |
| 3. I SOMEWHAT DISAGREE | 6. I STRONGLY AGREE |

12. My teaching skills will be improved if staff development programs focus on helping teachers develop the understanding of the most useful ways of representing the ideas of specific disciplines.....1 2 3 4 5 6

13. My teaching skills will be improved if staff development programs focuses on helping teachers understand how to create and maintain appropriate, orderly teaching and learning environments.....1 2 3 4 5 6

14. My teaching skills will be improved if staff development program presenter is knowledgeable in the field he/she is presenting.....1 2 3 4 5 6

15. My teaching skills will be improved if staff development program presenter can explain the content in clear and concrete, rather than abstract and theoretical terms.....1 2 3 4 5 6

Among statement 7 to statement 15, which characteristic is the *most important*? _____

Among statement 7 to statement 15, which characteristic is the *second most important*? _____

SUPPORTING OF STAFF DEVELOPMENT

16. My teaching skills will be improved if the principal allocates the time necessary for the successful implementation of staff development programs.....1 2 3 4 5 6

17. My teaching skills will be improved if the principal allocates the resources necessary for the successful implementation of staff development programs.....1 2 3 4 5 6

18. My teaching skills will be improved if the principal actively participates in staff development programs that are designed for all school personnel.....1 2 3 4 5 6

19. My teaching skills will be improved if the principal serves as a staff development presenter.....1 2 3 4 5 6

Do you remember the scale that indicates your level of disagreement or agreement?

- | | |
|------------------------|---------------------|
| 1. I STRONGLY DISAGREE | 4. I SOMEWHAT AGREE |
| 2. I DISAGREE | 5. I AGREE |
| 3. I SOMEWHAT DISAGREE | 6. I STRONGLY AGREE |

20. My teaching skills will be improved if the principal encourages teachers to serve as staff development presenters.....1 2 3 4 5 6

Among statement 16 to statement 20, which characteristic is the *most important*? _____

Among statement 16 to statement 20, which characteristic is the *second most important*? _____

FOLLOW-UP ACTIVITIES OF STAFF DEVELOPMENT

21. My teaching skills will be improved if the participants have sufficient time to think, develop, reflect, discuss with peers, and apply what they learned from staff development programs. In other words, have follow-up activities and assistance after teachers have been trained.....1 2 3 4 5 6

II. Your current educational degrees (please check one)

___ ASSOCIATE

___ BACHELORS

___ MASTERS

III. Number of years of your current teaching experience (check one)

___ 2-10 YEARS

___ 11-20 YEARS

___ BEYOND 21 YEARS

IV. Your gender (check one)

___ MALE

___ FEMALE

V. Do you want to receive the summary of study results? (check one)

YES

NO

台南市教師對在職進修為提升教學技能之媒介之看法調查問卷

這份問卷的目的在了解教師對在職進修是否為提升教學技能的媒介之看法，以做為舉辦教師在職進修活動之參考。這份問卷共有五個部份：第一部份包含了 21 個陳述，每個陳述有一個在職進修活動的特質，同時，每個陳述的後面都有一個 6 等級量表，請根據這量表，圈選您對每一陳述不同意或同意的程度。第二、三、四部份將請您提供您的背景資料，請在適當的地方打勾。第五部份請問您是否需要收到本研究的結果摘要，若您需要這份摘要，請在“是”的地方打勾。

【第一部份】

每項陳述後面的六個數字顯示您對每一個陳述不同意或同意的程度。根據您的看法，您認為包含以下特質的在職進修活動會提升您的教學技能嗎？請圈選每一陳述後面的號碼。

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

在職進修的計畫

1. 假如在職進修的計畫或決策過程有教師代表參與的話，
在職進修將能提升我的教學技能.....1 2 3 4 5 6
2. 假如在職進修活動的重點在於為教師執行工作職責
奠定基礎的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6
3. 假如在職進修的目標能和教育局的教育目標相契合
的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6
4. 假如在職進修的目標能和本校的學校發展目標
相契合的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6
5. 假如在職進修的目標能和我的個人發展目標相契合
的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

6. 假如在職進修活動的主辦單位能事先考慮教師時間，交通及食宿等限制的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

在陳述 1 到 6 中，您認為那一項特質是最重要的（請填 1 至 6 中任一號碼）

在陳述 1 到 6 中，您認為那一項特質是次重要的（請填 1 至 6 中任一號碼）

在職進修的執行

7. 假如在職進修活動是在彼此支持和合作的的氣氛下進行的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

8. 假如在職進修活動著重於建構主義的學習方法(像是同儕指導，行動研究，寫學習日誌，及小組討論)的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

9. 假如我的學校能決定自己的在職進修活動內容的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

10. 假如在職進修活動包含了為成人學習者設計的學習活動(像是引用舊經驗和真實例子)的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

11. 假如在職進修活動著重於增進教師對教學內容的知識的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

12. 假如在職進修活動著重於幫助教師了解如何有效呈現特定教學內容的觀念的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

13. 假如在職進修活動著重於幫助教師了解如何維持一個適當而有秩序的教學環境的話，在職進修將能提升我的教學技能.....

1 2 3 4 5 6

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

14. 假如在職進修活動的演示者對所演示領域的知識具有豐富知識的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

15. 假如在職進修活動的演示者能用清楚而明確的詞彙來表達課程內容的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

在陳述 7 到 15 中，您認為那一項特質是最重要的__ (請填 7 至 15 中任一號碼)

在陳述 7 到 15 中，您認為那一項特質是次重要的__ (請填 7 至 15 中任一號碼)

在職進修的支持情形

16. 假如校長能分配執行在職進修活動所需要的時間給老師的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

17. 假如校長能分配執行在職進修活動所需要的資源給老師的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

18. 假如校長能主動的參與為全校同仁所舉辦的在職進修活動的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

19. 假如校長能成為在職進修活動的演示者的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

20. 假如校長能鼓勵教師成為在職進修活動的演示者的話，在職進修將能提升我的教學技能.....1 2 3 4 5 6

在陳述 16 到 20 中，您認為那一項特質是最重要的__ (請填 16 至 20 中任一號碼)

在陳述 16 到 20 中，您認為那一項特質是次重要的__ (請填 16 至 20 中任一號碼)

在職進修的後續追蹤

21. 假如我有足夠的時間去思考, 應用, 與同事討論研習活動所學之內容. 換句話說, 有後續追蹤的話, 在職進修將能提升我的教學技能. 1 2 3 4 5 6

【第二部份】

您的學歷(請打勾)

- 師專或五專
 大學
 碩士(含四十學分班)

【第三部份】

包含今年, 您總共的教學年資(請打勾)

- 2-10 年
 11-20 年
 21 年以上

【第四部份】

您的性別(請打勾)

- 男性
 女性

【第五部份】

您要收到本研究的結果摘要嗎?(請打勾)

- 要
 不要

APPENDIX F

INSTRUMENT: BOTH ENGLISH AND CHINESE

TAINAN CITY TEACHER PERCEPTIONS OF STAFF DEVELOPMENT AS A VEHICLE FOR IMPROVING TEACHING SKILLS SURVEY

In order to provide information for holding staff development activities, the purpose of this instrument is to get your perceptions of staff development as a vehicle for improving teachers' teaching skills. There are five sections in this instrument. Section I includes 25 statements. Each statement includes one characteristic of staff development. There is a 6-point scale on each statement. Please circle the number by the statement that indicates your level of disagreement or agreement. Section II, III, and IV include questions that are related to your individual background. Please place a check mark in front of the answers that best express your individual background. Section V asks you whether you want to receive a executive summary of the study results or not. If you wish to receive a copy of the results, please check the YES box.

[Section I]

In the following six-point Likert scale, indicate your level of disagreement or agreement with each statement. According to your perception, do you think staff development programs that include the noted characteristics will improve your teaching skills? Please circle the number at the end of each statement. In addition, this section divides staff development into planning, implementation, supporting, and follow-up areas. According to your perceptions, please answer the most important and the second important characteristics at the end of each area.

- | | |
|--|---|
| <p>1. I STRONGLY DISAGREE</p> <p>2. I DISAGREE</p> <p>3. I SOMEWHAT DISAGREE</p> | <p>4. I SOMEWHAT AGREE</p> <p>5. I AGREE</p> <p>6. I STRONGLY AGREE</p> |
|--|---|

PLANNING OF STAFF DEVELOPMENT

- | | SD | D | Sd | Sa | A | SA |
|---|----|---|----|----|---|----|
| 1. My teaching skills will be improved if teacher representatives are involved in the planning or decision-making process of staff development programs..... | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. My teaching skills will be improved if staff development programs focus on preparing teachers to implement the best practices related to carrying out teaching responsibilities..... | 1 | 2 | 3 | 4 | 5 | 6 |

SD. D. Sd. Sa. A. SA

- 3. My teaching skills will be improved if staff development programs are congruent with the goals of Tainan City's Department of Education.....1 2 3 4 5 6
- 4. My teaching skills will be improved if staff development programs are congruent with my school goals.....1 2 3 4 5 6
- 5. My teaching skills will be improved if staff development programs are congruent with my personal goals.....1 2 3 4 5 6
- 6. My teaching skills will be improved if the staff development program purveyor considers the limitations such as participants' schedule, transportation, food, and living location in advance.....1 2 3 4 5 6

Among statement 1 to statement 6, which characteristic is the *most important*? _____

Among statement 1 to statement 6, which characteristic is the *second most important*? _____

IMPLEMENTATION OF STAFF DEVELOPMENT

- 7. My teaching skills will be improved if staff development programs are conducted in a supportive and collaborative climate.....1 2 3 4 5 6
- 8. My teaching skills will be improved if staff development programs focus on constructivist learning methods such as peer coaching, action research, journal writing, or small-group problem solving.....1 2 3 4 5 6
- 9. My teaching skills will be improved if my school can determine its own staff development activities.....1 2 3 4 5 6
- 10. My teaching skills will be improved if staff development programs include a variety of activities designed for adult learners such as the use of prior experiences and real world applications.1 2 3 4 5 6
- 11. My teaching skills will be improved if staff development programs focus on enhancing teachers' content knowledge.....1 2 3 4 5 6
- 12. My teaching skills will be improved if staff development programs focus on helping teachers develop an understanding of the most useful ways of representing the ideas of specific disciplines.....1 2 3 4 5 6

SD. D. Sd. Sa. A. SA

13. My teaching skills will be improved if staff development programs focus on helping teachers understand how to create and maintain appropriate, orderly teaching and learning environments.....1 2 3 4 5 6

14. My teaching skills will be improved if the staff development program presenter is knowledgeable in the field he/she is presenting.....1 2 3 4 5 6

15. My teaching skills will be improved if the staff development program presenters use clear and practical terms to describe the content.....1 2 3 4 5 6

Among statement 7 to statement 15, which characteristic is the *most important*? _____

Among statement 7 to statement 15, which characteristic is the *second most important*? _____

SUPPORTING OF STAFF DEVELOPMENT

16. My teaching skills will be improved if the principal allocates the time necessary for the successful implementation of staff development programs.....1 2 3 4 5 6

17. My teaching skills will be improved if the principal allocates the resources necessary for the successful implementation of staff development programs.....1 2 3 4 5 6

18. My teaching skills will be improved if the principal actively participates in staff development programs that are designed for all school personnel.....1 2 3 4 5 6

19. My teaching skills will be improved if the principal serves as a staff development presenter.....1 2 3 4 5 6

20. My teaching skills will be improved if the principal encourages teachers to serve as staff development presenters.....1 2 3 4 5 6

Among statement 16 to statement 20, which characteristic is the *most important*? _____

Among statement 16 to statement 20, which characteristic is the *second most important*? _____

FOLLOW-UP ACTIVITIES OF STAFF DEVELOPMENT

21. My teaching skills will be improved if I have sufficient time to think about what I learned from staff development activities.....1 2 3 4 5 6

22. My teaching skills will be improved if I have sufficient time to apply what I learned from the staff development activities.....1 2 3 4 5 6

23. My teaching skills will be improved if I have sufficient time to discuss what I learned from staff development activities with other teachers.....1 2 3 4 5 6

24. My teaching skills will be improved if my school provides necessary follow-up assistance.....1 2 3 4 5 6

25. My teaching skills will be improved if my school appropriately evaluates what I learned from the staff development activities.....1 2 3 4 5 6

Among statement 21 to statement 25, which characteristic is the *most important*? _____

Among statement 21 to statement 25, which characteristic is the *second most important*? _____

[Section II]

Your current educational degree (please check one)

ASSOCIATE

BACHELORS

MASTERS

[Section III]

Including the current year, the total years of your teaching experience (check one)

2-5 YEARS,

6-10 YEARS,

11-20 YEARS,

BEYOND 21 YEARS

[Section IV]

Your gender (check one)

- MALE
- FEMALE

[Section V]

Do you want to receive the executive summary of study results? (check one)

- YES
- NO

台南市教師對在職進修為提升教學技能之媒介的看法調查問卷

這份問卷的目的在了解教師對在職進修是否為提升教學技能之媒介的看法，以做為舉辦教師在職進修活動之參考。這份問卷共有五個部份：第一部份包含了 25 個陳述，每個陳述有一個在職進修活動的特質，同時，每個陳述的後面都有一個 6 等級量表，請根據這量表，圈選您對每一陳述不同意或同意的程度。第二、三、四部份將請您提供您的背景資料，請在適當的地方打勾。第五部份為您是否需要收到本研究的結果摘要，若您需要這份摘要，請在”是”的地方打勾。

【第一部份】

第 1 到 25 個陳述後面的六個數字顯示您對每一個陳述不同意或同意的程度。根據您的看法，您認為包含以下特質的在職進修活動會提升您的教學技能嗎？請圈選每一陳述後面的號碼。此外，本部份將在職進修活動區分成計畫、執行、支持情形和後續追蹤等四區，依據您的看法，請在每一區最後的部份填答您理想中認為最重要和次重要的在職進修活動特質。

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

在職進修的計畫

1. 假如在職進修的計畫或決策過程有教師代表的參予，
在職進修將更能提升我的教學技能.....1 2 3 4 5 6
2. 假如在職進修活動的重點在於為教師執行工作職責
奠定基礎，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
3. 假如在職進修的目標能和教育局的教育目標相契合，
在職進修將更能提升我的教學技能.....1 2 3 4 5 6

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

4. 假如在職進修的目標能和本校的學校發展目標相契合，
在職進修將更能提升我的教學技能.....1 2 3 4 5 6
5. 假如在職進修的目標能和我的個人發展目標相契合，
在職進修將更能提升我的教學技能.....1 2 3 4 5 6
6. 假如在職進修活動的主辦單位能事先考慮教師時間，
交通及食宿等問題，在職進修將更能提升我的
教學技能.....1 2 3 4 5 6

在陳述 1 到 6 中，您認為那一項特質是最重要的____ (請填 1 至 6 中任一號碼)

在陳述 1 到 6 中，您認為那一項特質是次重要的____ (請填 1 至 6 中任一號碼)

在職進修的執行

7. 假如在職進修活動是在彼此支持和合作的的氣氛下
進行，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
8. 假如在職進修活動著重於建構主義的學習方法(例如
同儕指導，行動研究，寫學習日誌，及小組討論)
，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
9. 假如我的學校能決定自己的在職進修活動內容，在職
進修將更能提升我的教學技能.....1 2 3 4 5 6
10. 假如在職進修活動包含了為成人學習者設計的學習
活動(例如引用舊經驗和真實例子)，在職進修將更
能提升我的教學技能.....1 2 3 4 5 6
11. 假如在職進修活動著重於增進教師對教學內容的
知識，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

12. 假如在職進修活動著重於幫助教師了解如何有效呈現特定教學內容的觀念，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
13. 假如在職進修活動著重於幫助教師了解如何維持一個適當而有秩序的教學環境，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
14. 假如在職進修活動的演示者對所演示的領域具有豐富知識，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
15. 假如在職進修活動的演示者能用清楚而明確的詞彙來表達課程內容，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

在陳述 7 到 15 中，您認為那一項特質是最重要的___ (請填 7 至 15 中任一號碼)

在陳述 7 到 15 中，您認為那一項特質是次重要的___ (請填 7 至 15 中任一號碼)

在職進修的支持情形

16. 假如校方能給予教師在職進修活動所需要的時間，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
17. 假如校方能給予教師在職進修活動所需要的資源，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
18. 假如校長能主動的參與校內所舉辦的在職進修活動，在職進修將更能提升我的教學技能.....1 2 3 4 5 6
19. 假如校長能擔任在職進修活動的演示者，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

| | | | | | |
|----|----|----|----|----|----|
| 1. | 2. | 3. | 4. | 5. | 6. |
| 非 | 不 | 有 | 有 | 同 | 非 |
| 常 | 同 | 點 | 點 | 意 | 常 |
| 不 | 意 | 不 | 同 | | 同 |
| 同 | | 同 | 意 | | 意 |
| 意 | | 意 | | | |

20. 假如校長能鼓勵教師成爲在職進修活動的演示者，
在職進修將更能提升我的教學技能.....1 2 3 4 5 6

在陳述 16 到 20 中，您認爲那一項特質是最重要的____ (請填 16 至 20 中任一號碼)

在陳述 16 到 20 中，您認爲那一項特質是次重要的____ (請填 16 至 20 中任一號碼)

在職進修的後續追蹤

21. 假如我有足夠的時間去思考研習活動所學之內容
，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

22. 假如我有足夠的時間將研習活動所學之內容加以
應用，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

23. 假如我有足夠的時間與同事討論研習活動的所學之
內容，在職進修將更能提升我的教學技能.....1 2 3 4 5 6

24. 假如在研習後，學校能提供必要的後續協助，在職
進修將更能提升我的教學技能.....1 2 3 4 5 6

25. 假如在研習後，學校會對老師做適當的評鑑，在職
進修將更能提升我的教學技能.....1 2 3 4 5 6

在陳述 21 到 25 中，您認爲那一項特質是最重要的____ (請填 21 至 25 中任一號碼)

在陳述 21 到 25 中，您認爲那一項特質是次重要的____ (請填 21 至 25 中任一號碼)

【第二部份】

您的學歷(請打勾)

- 師專或五專
- 大學
- 碩士(含四十學分班)

【第三部份】

包含今年，您總共的教學年資(請打勾)

- 2-5 年
- 6-10 年
- 11-20 年
- 21 年以上

【第四部份】

您的性別(請打勾)

- 男性
- 女性

【第五部份】

您要收到本研究的結果摘要嗎?(請打勾)

- 要
- 不要

APPENDIX G

LETTER

Dear Teacher:

The Taiwan Department of Education mandates that elementary and secondary school teachers have to participate in staff development programs of at least 18 hours each year or 90 hours within 5 years. This law could greatly affect the quality of teachers' staff development and our schools' development. However, few studies have examined whether teachers perceive staff development as useful for improving teachers' teaching skills. Therefore, this study will attempt to determine the degree to which Tainan City teachers perceive staff development as a vehicle for improving teachers' teaching skills.

To gain a city wide educational perspective, you have been selected to participate in this survey. Please take a few minutes to complete the survey. I hope that the information we obtain from this survey will act as a benchmark to guide your own staff development and possibly help others in the education profession.

Of course, your replies will be held in complete confidence. The survey has an identification number for mailing and follow-up purposes only. All responses will be reported in group statistics. Your name will never appear in the study.

The results of this study will be made available to the superintendent of Tainan City Department of Education. You may receive a summary of results by checking the YES box of "want to receive the executive summary of study results" on section V of the survey.

After finishing the survey, please return it to the representative who gave you this survey by December 3, 1999. I am looking forward to receiving your completed survey and comments.

Your cooperation is most important to this study and I shall be grateful for your response.

Sincerely,

Cheng-Yu Hsieh

敬愛的老師:

教育部規定高中職以下學校教師必需參加教師在職進修活動每年至少 18 個小時或五年 90 個小時，這項法規對教師的專業發展及學校發展將會有很大的影響。然而，國內幾乎沒有針對教師對在職進修是否真能幫助教師提升教學技能的看法作研究，有鑑於此，本研究將試圖了解教師對在職進修為提升教學技能的媒介之看法。

爲了蒐集全台南市教師對此項議題的教育觀點，我們很高興選您爲樣本來回答這份問卷，您只要花幾分鐘的時間就可以完成這份問卷了。希望這份問卷所提供的資料，可以當做您及其他老師日後參與在職進修活動的參考。

當然，您的回答將享有完全的機密性，這份問卷的右上角的號碼僅提供郵寄研究結果的摘要及補寄問卷的用途而已，所有的回答將被用在團體統計的報告上，您的大名將不會出現在這份研究的任何地方。

這份研究的結果將被送至台南市教育局以供參考，同時，若您在本問卷第五部份“希望收到研究摘要”的地方打勾，您也可以收到本研究的結果摘要。

填答完所有的問題後，請將此份問卷交回給各校代理人就可以了，期望能在 12 月 3 日前收到您完整的回覆。

您的協助將是對這份研究最重要的部份，在此謹以 12 萬分的謝意感謝您。

謹祝

教安

謝振裕敬上

APPENDIX H

SAMPLE FROM ELEMENTARY SCHOOLS

Sample from Elementary Schools

| School | Mailing Number | Useable Return Number | Useable Return Rate |
|------------------------------|----------------|-----------------------|---------------------|
| Sheng-Li Elementary School | 10 | 10 | 100.00% |
| Bo-Ai Elementary School | 3 | 3 | 100.00% |
| Da-Tong Elementary School | 5 | 4 | 80.00% |
| Dong-Kuang Elementary School | 12 | 11 | 91.67% |
| De-Gao Elementary School | 9 | 9 | 100.00% |
| Chung-Shiu Elementary School | 12 | 12 | 100.00% |
| Hu-Hsin Elementary School | 11 | 11 | 100.00% |
| Chung-Ming Elementary School | 10 | 10 | 100.00% |
| Chih-Kai Elementary School | 3 | 3 | 100.00% |
| Hsin-Hsin Elementary School | 3 | 3 | 100.00% |
| Zi-Hsin Elementary School | 11 | 11 | 100.00% |
| Yuang-Hwa Elementary School | 11 | 10 | 90.91% |
| Si-Shu Elementary School | 2 | 2 | 100.00% |
| Hseng-Gong Elementary School | 8 | 8 | 100.00% |
| Long-Gang Elementary School | 2 | 2 | 100.00% |
| Sai-Jing Elementary School | 1 | 1 | 100.00% |
| Hsin-Nan Elementary School | 9 | 8 | 88.89% |
| Li-Zen Elementary School | 10 | 10 | 100.00% |
| Gong-Yuan Elementary School | 7 | 7 | 100.00% |
| Kai-Yuan Elementary School | 6 | 5 | 83.33% |

Continued

| School | Mailing Number | Useable Return Number | Useable Return Rate |
|-----------------------------|----------------|-----------------------|---------------------|
| Da-Kuang Elementary School | 7 | 7 | 100.00% |
| Da-Gang Elementary School | 11 | 9 | 81.82% |
| Chung-Yi Elementary School | 4 | 4 | 100.00% |
| Yuang-Hu Elementary School | 4 | 4 | 100.00% |
| Jing-Shih Elementary School | 8 | 7 | 87.50% |
| Si-Men Elementary School | 3 | 3 | 100.00% |
| Ann-Ching Elementary School | 7 | 7 | 100.00% |
| Ann-Dang Elementary School | 5 | 3 | 60.00% |
| Hi- Dang Elementary School | 6 | 5 | 83.33% |

APPENDIX I

SAMPLE FROM JUNIOR HIGH SCHOOLS

Sample From Junior High Schools

| School | Mailing Number | Useable Return Number | Useable Return Rate |
|--------------------------------|----------------|-----------------------|---------------------|
| Ho-Jia Junior High School | 12 | 9 | 75.00% |
| Chung-Hsiao Junior High School | 7 | 6 | 85.71% |
| Hu-Hsin Junior High School | 15 | 13 | 86.67% |
| Da-Chen Junior High School | 15 | 9 | 60.00% |
| Hsin-Hsih Junior High School | 16 | 13 | 81.25% |
| Nan-Ning Junior High School | 5 | 3 | 60.00% |
| Cheng-Kong Junior High School | 4 | 4 | 100.00% |
| Ming-De Junior High School | 12 | 11 | 91.67% |
| Win-Hsiang Junior High School | 9 | 9 | 100.00% |
| Chung-Hsang Junior High School | 17 | 16 | 94.12% |
| Jeng-Hsin Junior High School | 14 | 11 | 78.57% |
| Ann-Ping Junior High School | 10 | 10 | 100.00% |
| Tu-Chen Junior High School | 9 | 8 | 88.89% |
| Ann-Hsuang Junior High School | 13 | 10 | 76.92% |
| Total | 158 | 132 | 83.54% |

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