A STUDY ON THE PREDICTORS OF TEACHERS' SENSE OF EFFICACY BELIEFS

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ABSTRACT

A STUDY ON THE PREDICTORS OF TEACHERS' SENSE OF EFFICACY BELIEFS

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The purpose of this study was to examine the predictors of teachers' sense of efficacy including gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from parents, and support from administration, and teaching resources.

The present study was conducted in the 2006-2007 academic year. The study included a total of 383 science, mathematics, and classroom teachers from 62 elementary schools of Çankaya district in Ankara. Data were collected through Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001).

In the present study, data were analyzed by utilizing four separate hierarchical regression analyses. Results showed that gender, teaching field, and years of teaching experience variables were not significant predictors for overall teacher efficacy, efficacy in instructional strategies, efficacy in classroom management, and efficacy in student engagement, whereas satisfaction with

performance variable made significant contribution to all dependent variables. Parental support and teaching resources predicted only efficacy in student engagement.

Keywords: Self-Efficacy, Teacher Self-Efficacy, Efficacy in Instructional Strategies, Efficacy in Classroom Management, Efficacy in Student Engagement, Sources of Self-Efficacy, Principal Support, Collegial Support, Parental Support.

ÖZ

İLKÖĞRETİM ÖĞRETMENLERİNİN ÖZ-YETERLİKLERİNİN YORDANMASI ÜZERİNE BİR ÇALIŞMA

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Bu çalışmanın amacı öğretmenlerin öz-yeterlik inançlarının cinsiyet, branş, öğretmenlik tecrübesi, performanslarından yaşadıkları doyum, meslektaş, veli ve idari personelden aldıkları destek, ve okul tarafından kendilerine sağlanan kaynaklar değişkenleri açısından ne derecede yordandığını incelemektir. Bu çalışma, 2007-2008 akademik yılında yapılmıştır. Veriler, Ankara'nın Çankaya ilçesinin 62 farklı ilköğretim okulunda çalışan toplam 383 fen bilgisi, sınıf, ve matematik öğretmenlerinden Öğretmen Öz-Yeterlik Ölçeği (Tschannen-Moran & Woolfolk Hoy, 2001) kullanılarak toplanmıştır. Veriler dört ayrı hiyerarşik regresyon analizi kullanılarak incelenmiştir.

Sonuçlar cinsiyetin, branşın, ve öğretmenlik tecribesinin öğretmenlerin genel, öğretim stratejilerine yönelik, sınıf yönetimine yönelik ve öğrenci katılımına yönelik öz-yeterliklerini etkilemediği; fakat performanslarından yaşadıkları doyumun öz-yeterlikleri etkilediğini göstermiştir. Ayrıca aile desteğinin ve okul tarafından sağlanan kaynakların öğrenci katılımına yönelik öz-yeterliğini etkilediği bulunmuştur.

Anahtar Kelimeler: öz-yeterlik, öğretmen öz-yeterliği, öğretim stratejilerine yönelik öz-yeterlik, sınıf yönetimine yönelik özyeterlik, öğrenci katılımına yönelik öz-yeterlik, öz-yeterlik kaynakları, idare desteği, aile desteği, veli desteği.

To my family

And to my best friends, Ceyda and Volkan

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TCL	: Teacher Locus of Control
RSA	: Responsibility for Student Achievement
GTE	: General Teaching Efficacy
PTE	: Personal Teaching Efficacy
TES	: Teacher Efficacy scale
TE	: Teacher Efficacy
STEBI	: Science Teaching Efficacy Beliefs Instrument
STEBI-B	: Science Teaching Efficacy Beliefs Instrument Form B
STEBI-A	: Science Teaching Efficacy Beliefs Instrument Form A
PSTE	: Personal Science Teaching Efficacy
STOE	: Science Teaching Outcome Expectancy
TSES	: Teachers' Sense of Efficacy Scale
SETAKIST	: Self-Efficacy Teaching and Knowledge Instrument for Science Teachers
AMOS	: Analysis of Moment Structures
CFI	: Comparative Fit Index
RMSEA	: Root Mean Square Error of Approximation

CHAPTER I

INTRODUCTION

1.1. Background of the Study

Teacher efficacy belief took its basis from social cognitive theory which was developed by Albert Bandura (1977). He (1997) stated teacher efficacy as a type of self-efficacy and defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1986, p.3).

On the other hand, Tschannen-Moran, Woolfolk Hoy and Hoy (1998) defined teacher efficacy as "the teacher's belief in his or her capability to organize and execute course of action required to successfully accomplish a specific teaching task in a particular context" (p.22).

Like self-efficacy, teacher efficacy depends on four types of sources: mastery experiences, psychological and emotional states, verbal persuasion and vicarious experiences (Bandura, 1986, 1997). Bandura proposed that mastery experiences were the most powerful sources of efficacy information because they depend on an individual's own experiences. The perception of one's performance takes a role to increase or to decrease efficacy beliefs. Vicarious experiences are learned by taking someone as a model. The degree to which the observer identifies with the model affects the observer's efficacy beliefs (Bandura, 1997). The more the observer identifies with the model, the stronger the efficacy will be influenced. Verbal persuasion, for a teacher, may be as a feedback from a colleague or a supervisor about his/her specific performance (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998). The efficacy beliefs of a teacher may be limitedly affected by verbal persuasion but a powerful persuasion can induce a teacher to try new innovations and persist to succeed a specific task. The level of emotional states plays an important role for a

teacher's the sense of efficacy beliefs. The level of anxiety may increase the efficacy beliefs if it is perceived as the sign of successful accomplishment or may decrease efficacy beliefs it is perceived as the sign of poor performance. Attributions take a role as well. If success is attributed to internal causes rather than chance it may strengthen the self-efficacy.

Teacher efficacy and its sources are one of the most significant issues which were studied in education. Research studies supported that teacher efficacy affects both the teachers themselves and their students. For example, teachers with high efficacy tend to accept their students' ideas easier than less efficacious teachers and use those ideas in decision-making process in the classroom (Ashton, 1984). Teacher efficacy was also related to students' motivation (Midgley, Feldlaufer, & Eccles, 1989), achievement (Ashton & Webb, 1986; Ross, 1992), and students' efficacy beliefs (Anderson, Greene, & Loewen, 1988). Moreover, teacher efficacy belief influences the behavior of teachers in the classroom. Teachers with high sense of efficacy tend to implement innovations in the classroom (Guskey, 1988), to behave more humanistic than those with lower sense of efficacy (Enochs, Scharmann, Riggs, 1995; Hoy & Woolfolk, 1990). In addition, efficacious teachers are less critical toward their students (Ashton, 1986; Gibson & Dembo, 1984), and work longer with difficult students (Gibson & Dembo, 1994).

Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) suggested an integrated model which reveals the cyclical nature of teacher efficacy. In this model, sources of efficacy information, cognitive process of the teacher, analyzing the teaching task and assessesing personal teaching competence, teacher efficacy, and performance are interrelated reciprocally. According to the model, low level of efficacy leads to a teacher lower level of effort and persistence. This causes lower performance which produces lower self-efficacy. Teachers with high level of efficacy present more persistent when faced with difficulties. This leads high performance to the teachers. Also, successful practices derived from mastery experience, vicarious experience, or verbal persuasion sources, lead to a teacher a successful performance. Successful performance then creates a new experience that shapes future beliefs in capability

and the cycle continues. (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Brouwers & Tomic, 1999).

There have been increasing numbers of studies related with efficacy in Turkey. For example, the studies on preservice biology teachers' efficacy beliefs in teaching biology (Savran & Çakıroğlu, 2001; Yılmaz, Köseoğlu, Gerçek, & Soran, 2006), the study on comparison of preservice elementary teachers' efficacy beliefs regarding science teaching (Savran Gencer & Çakıroğlu, 2005; Çakıroğlu, Çakıroğlu, & Boone, 2005), other comparative study investigating preservice mathematics teachers' efficacy beliefs concerning mathematics teaching (Çakıroğlu, 2008). In addition to these, there are other studies on adaptation of efficacy scales for measuring teachers' sense of efficacy beliefs (Çapa, Çakıroğlu, & Sarıkaya, 2005; Ekici, 2005; Akkoyunlu, Orhan, & Umay, 2005; Gerçek, Yılmaz, Köseoğlu & Soran, 2004; Bıkmaz, 2004; Bıkmaz, 2002).

The above studies focused on examining efficacy beliefs of preservice teachers and translation of teacher efficacy scales into Turkish. Present study differed from the above studies by investigating the predictors of teacher sense of efficacy beliefs. With this purpose this study may be a good source for the future studies.

1.2. Purpose of the Study

The purpose of this study was to examine the predictors of teachers' sense of efficacy by a set of variables including gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from parents, and support from administration, and teaching resources. The research questions of the study were as follows:

1. How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administration, parental support, and teaching resource predict the overall teacher efficacy?
    a. How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from

administration, parental support, and teaching resource predict the teacher efficacy in instructional strategies?

b. How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administration, parental support, and teaching resource predict the teacher efficacy in classroom management?

c. How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administration, parental support, and teaching resource predict the teacher efficacy in student engagement?

1.3. Definition of Important Terms

This is the section that includes important terms of the study.

Self-efficacy: Beliefs of one's own capabilities to succeed a specific task (Bandura, 1977).

Teacher self-efficacy: "The teacher's belief in his or her capability to organize and execute course of action required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998, p.22).

Principal support : "Assessed teachers' perception of his or her principal as supportive in establishing and sustaining a setting in which he or she can grow professionally and contribute to the improvement of student learning" (Capa, 2005, p.46).

Colleague support: Assessed teachers' perceived support from their colleagues both professionally and personally" (Capa, 2005, p.46).

Parental support: Assessed teachers' perceived support from the students' parents.

Efficacy in Instructional Strategies: Teachers' efficacy beliefs in their capabilities to use instructional strategies effectively in the classroom.

Efficacy in Classroom management: Teachers' efficacy beliefs in their capabilities to control disruptive behaviors of the students.

Efficacy in Student Engagement: Teachers' efficacy beliefs in their capabilities to engage students in the classroom.

1.4. Educational Significance

The purpose of this study was to examine the predictors of teachers' sense of efficacy beliefs. Investigating the teacher efficacy is important, since teacher efficacy is closely related with student self-efficacy (Anderson et al., 1988) and student motivation (Midgley, Feldlaufer, & Eccles, 1989). Teachers play an important role for student success by creating convenient learning environment. Teacher efficacy affects also teachers' own behaviors in the classroom (Hoy & Woolfolk, 1990; Gordon, 2001). Teachers with high efficacy beliefs are more likely to implement instructional strategies to enhance student learning rather than just to follow the traditional methods when compared with the teachers with low efficacy beliefs. Teacher efficacy influences student achievement through teacher persistence. Teachers with high efficacy take responsibility for student learning and may view student failure as an incentive for greater effort to improve achievement. These teachers spent more time monitoring the students and facilitating higher levels of classroom engagement (Good & Brophy, 2003). Therefore, examining the factors influencing teachers' sense of efficacy seems worthwhile not only to influence teachers' behavior in the classroom but also student achievement and motivation. In this study, both the sources of self-efficacy proposed by Bandura (1997) and the integrated model of teacher efficacy (Tschannen-Moran et al., 1998) were considered to investigate the predictors of teachers' sense of efficacy. In the model, aside from the sources of efficacy, teaching context was considered essential for forming self-efficacy. However, there are few studies in the literature examining this (Capa, 2005; Moore, 2007; Tschannen-Moran & Woolfolk Hoy, 2007). The present study focused on teaching context including support and teaching resources.

This study may be useful for the future studies and teacher educators in order to understand teachers' sense of efficacy beliefs which influence teaching behaviors of the teachers in the classroom and student achievement.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter covers the conceptual definition and development teachers' efficacy beliefs and investigation of predictors of teacher sense of efficacy beliefs. This chapter includes the following main headings: social cognitive theory, self-efficacy and outcome expectancy, sources of self-efficacy, the history and development of teacher efficacy, measurement of teacher efficacy, integrated model of teacher efficacy, the studies related with teacher efficacy and the studies of teacher efficacy in Turkey.

2.1. Social Cognitive Theory

The basis of social cognitive theory is found in the work of Albert Bandura; he believed that both internal and external factors had influence on human behavior. This is in contradiction with the views of the behaviorists, who indicated that behavior was shaped by external factors without the influence of human's internal thought (Bandura, 1989, 1997, 1999).

According to social cognitive theory, people are agent of their lives. "To be an agent is to intentionally make things happen by one's action" (Bandura, 2001, p.2). People do not respond mechanically to the stimuli, but rather they make something happen to modify their environment.

In social cognitive theory, human behavior is shaped by a process of triadic reciprocal determinism. The term determinism is used to refer that human behavior is affected by events rather than events independent of human (Bandura, 1978a). As shown in figure 1, the process includes the triadic reciprocal relationships of personal factors (affective, cognitive and biological ways), behavior, and the environment (Bandura, 1997). External events affect the human behavior through the cognitive processes. Cognitive processes partially influence how the external events will be perceived and it will be used in the future by the individual. It also determines the

level of external events' effects on person. People can arrange the environmental conditions that affect their behaviors. People's thinking, expectations and behaviors in the future are determined by experiences gained through their behavior. The influence of these three factors can be change according to person and situation.

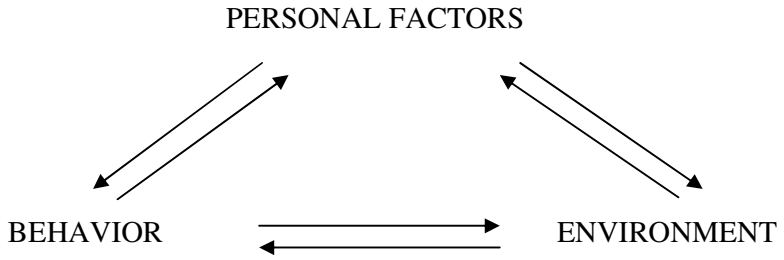

Figure 2.1. The relationship between the three classes of determinants in Bandura's triadic reciprocal relationship (1986a).

According to Bandura (1977), behaviors are based on two factors: self efficacy, an individual develops certain beliefs about his/her own capabilities to cope; and outcome expectancy, a person develops a generalized outcome expectancy based upon experiences.

2.1.1. Self-efficacy and Outcome Expectancy

Self-efficacy is a significant concept of social cognitive theory because it influences not only behavior but also thought patterns and environmental events. The people who believe that they can control the result of their actions can resist the difficulties rather than the people do not believe that they cannot control the results of the actions (Bandura, 1997, 1999). Bandura (1997) defined self-efficacy as "perceived self-efficacy refers to the beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p.3).

Self-efficacy influences goal setting, decision making process, and performances of a person directly or indirectly. People set goals and motivate

themselves to achieve those goals. They make self-evaluations to understand how their improvement and to judge their capabilities. By this way they motivate themselves. Self-efficacy influences self-motivation of an individual through goal setting and self-evaluation. Thus, self-efficacy determines how long people resist the difficulties. The people who have high sense of efficacy when faced with an obstacles can make more effort for a long time to overcome difficulties regarding those who have lower sense of efficacy beliefs. Self-efficacy also influence people's decision making process for example their career choice (Gallavan, 2003). Moreover, self-efficacy beliefs affect how people think that help for better performance or cause worse performance. High efficacious people imagine positive situations about themselves and hereby their performance is affected positively, whereas those who have low efficacy beliefs draw negative situations may lower their performance.

Self-esteem and self-concept may be sometimes used as the same meaning with the self-efficacy. Woolfolk Hoy (2004) stated that self-efficacy is related with the future beliefs about a specific situation rather than beliefs of past. She also pointed out that self-concept depends on comparisons that a person makes between himself or herself to the other persons by referencing their success and competence in a specific task. Self-concept also has a comprehensive meaning than self-efficacy since it includes a person's all beliefs about himself or herself. Woolfolk Hoy (2004) drew the difference between self-esteem and self-efficacy regarding judgment of capabilities as "self-esteem is concerned with judgments of self-worth" (p.3). They do not influence each other directly. A person may have high sense of efficacy at a particular task such as dancing but may not to have high self-esteem.

The other important concept in the social cognitive theory is outcome expectations. Outcome expectation differs from self-efficacy such a way that it consists of an individual's judgments about a certain behavior's outcome for a specific condition. However, self-efficacy is defined as one's beliefs in his or her capabilities to achieve a specific task. Humans may believe that certain outcomes will be caused by a special behavior but they may not believe in their capabilities to execute it. Self-efficacy and outcome expectancy may influence each other. If an

individual has low self-efficacy belief, he or she may anticipate negative outcomes of certain behavior but an individual with high self-efficacy he or she may believe that the outcomes of same behavior will be positive (Bandura, 1999).

2.1.2. Sources of Self-efficacy

According to Bandura (1997) there are four sources of efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasion, and emotional states. Mastery experiences are the most powerful source of efficacy beliefs because these kinds of experiences depend on the personal experiences of human. When the numbers of successful experiences of the human increase their self-efficacy beliefs also increase, whereas repeating failures decrease the self-efficacy beliefs (Bandura, 1977). Usher and Pajares (2006) supported by their study that mastery experiences are the strongest source to influence 6^{th} grade students' academic and self-regulatory self-efficacy beliefs. Britner and Pajares (2006) also found that mastery experiences are the only significant predictor sources for the middle school students' science self-efficacy beliefs.

People do not only rely on their own experiences but also on experiences of other people. Vicarious experiences were gained by observing other's behavior (the model). Observing the model who accomplished successfully a specific task or not may affect the efficacy level of the observer (Bandura, 1977). If the model performs well, the observer believes that he or she can do the same thing, so his or her efficacy level increases. If the model does not perform well, the efficacy of observer is influenced negatively and decreases (Woolfolk Hoy, 2000). Self-efficacy is particularly affected by vicarious experiences if an individual has few experiences.

Verbal persuasion or social persuasion is used to induce a person to believe his or her capabilities by giving feedback for a specific behavior (Woolfolk Hoy, 2000; Paulou, 2007). Persuasion may be limited to increase self-efficacy beliefs. The effect of it depends on credibility of the persuader. Positive feedbacks may increase

the efficacy beliefs of an individual, while self-efficacy beliefs can be decreased by negative feedback (Mulholland & Wallace, 2001).

People can use their emotional states to make judgments about their capabilities (Bandura, 1982a). People can observe their capabilities in stressful situations. For example, people with high self-efficacy may judge that their high heart rates as the indicator of a possible good performance, while those with low sense of efficacy believe the same rate as the level of stress (Bandura, 1997).

2.2. Teacher Efficacy: History and Development of Construction

Teacher efficacy was defined by Tschannen-Moran and Woolfolk Hoy and Hoy (1998) as "the teacher's belief in his or her capability to organize and execute course of action required to successfully accomplish a specific teaching task in a particular context" (p.22).

The concept of teacher efficacy was originated from the two works: Bandura (1977) and Rotter (1966). As the extent to which Rotter's work, Rand researchers' two questions aimed to understand teachers' beliefs of whether or not they can control the student achievement and motivation or cannot. On the other hand, Bandura (1997) called teacher efficacy as a type of self-efficacy. The self-efficacy beliefs influence an individual's effort and stress levels, and resistance to difficulties. These two strands are interrelated to each other but both lack of clarity while determining the nature of teacher efficacy (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). The uncertainties source from the unresolved questions related with teacher efficacy. For example, is teacher efficacy a teacher characteristic which was determined by teacher efficacy instrument or is it a context specific? How does teacher efficacy affect teaching behavior? (Tschannen-Moran & Woolfolk Hoy, 1998). Tschannen-Moran et al. (1998) developed an integrated model of teacher efficacy to clarify the questions about teacher efficacy. The model will be explained after measurement of teacher efficacy.

2.2.1. Measurement of Teacher Efficacy

The first stream of teacher efficacy was based on Rotter's social learning theory. The Rand researches developed two items which were based on the locus of control.

The first Rand item was: "When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment." Teachers who agreed with this item strongly show that external factors have more powerful effects on students' performance, achievement and motivation than effort of teachers. Students' performance is influenced by external factors such as family, society, and students their own physiological, emotional, and cognitive needs. The teacher beliefs on their own capabilities to overcome negative effects of external factors were called as general teaching efficacy (GTE) (Ashton et al., 1982). The second Rand item was: "If I really try hard, I can get through to even the most difficult or unmotivated students." The teachers who have agreement with the second item show that they believe their own capabilities to affect the students' performance and achievement due to the external factors. They also believe that they can overcome the difficulties which students face outside. This aspect of efficacy was called personal teaching efficacy (PTE) (Tschannen-Moran, Hoy & Hoy, 1998). Teacher efficacy (TE) is determined by summing of these two items in the Rand studies.

Other measures of teacher efficacy based on the Rand/Rotter tradition are the Teacher Locus of Control (TLC) (Rose & Medway, 1981), the Responsibility for Student Achievement (RSA) (Guskey, 1981), and the Webb Efficacy Scale (Ashton, Olejnik, Crocker & McAuliffe, 1982). The TLC includes 28 two adverse choice-items that show situations of student success (14 items) and student failure (14 items). These adverse options let either internal (teacher) or external (student) explanation for student outcome. Similarly, the RSA includes 30 items which presents two explanations (external or internal) for student success or failure.

The second strand of teacher efficacy measurement is grounded by Bandura's social cognitive theory (Bandura, 1977). Several measures followed this tradition, including the Teacher Efficacy Scale (Gibson & Dembo, 1984), The Science Teaching Efficacy Belief Instrument (Riggs & Enochs, 1990), the Ashton Vignettes (Ashton, Buhr & Crocker, 1984), and Teacher Self Efficacy Scale (Bandura, 1997).

Ashton and Webb (1986) were among the first researchers to develop teacher efficacy model based on Bandura's social cognitive theory (Bandura, 1977). According to them, teacher outcome expectations corresponded to the first Rand item ("When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment"), while efficacy expectations corresponded to the second Rand item ("If I really try hard, I can get through to even the most difficult or unmotivated student"). These two items constitute teacher efficacy (TE).

Gibson and Dembo (1984) developed the Teacher Efficacy Scale (TES) mostly depended on Ashton and Webb's work. The scale including 30 items was developed in early 1980s by taking its bases from Bandura's social cognitive theory and aimed to measure two dimensions of efficacy. The first dimension was called "Personal Teaching Efficacy" (PTE) includes teachers' beliefs their own teaching capabilities. This item corresponded Bandura's self-efficacy dimension and second Rand item ("If I really try hard, I can get through to even the most difficult or unmotivated student"). The second dimension was called "General Teaching Efficacy" (GTE) which includes teachers' beliefs that their influence on students is limited by external factors. This items matched with Bandura's outcome expectations dimension and first Rand item ("When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment") (Henson, 2002; Coladarci, 1992; Woolfolk & Hoy, 1990). The further analysis of TES showed that this instrument's some items has loaded on both of two factors. That's why some of the researcher used its short form including 16 items. Hoy and Woolfolk (1993) used the other short form of TES with

10 items; five items personal teaching efficacy, five items general teaching efficacy (α = .77 for PTE and α = 72 for GTE).

According to Gibson and Dembo (1984), the teachers with high scores on both personal teaching efficacy (PTE) and teaching efficacy would give more focus on student achievement in the classroom, would be more willing to answer the students' questions and persist longer to difficulties in the classroom than teachers with lower expectations of their effects on student learning.

According to Bandura (1977), self-efficacy is considered to a subject-specific concept. So, the teachers' efficacy beliefs about a specific subject may be different from their general efficacy beliefs. Therefore, Riggs and Enochs (1990) developed a subject-specific instrument which was called the Science Teaching Efficacy Belief Instrument (STEBI) to measure science teaching efficacy belief. The STEBI has a Likert scale format in which there are both positively and negatively-written 25 items. Items were stated to measure only self-efficacy or outcome expectancy rather than combination of self-efficacy and outcome expectancy. Responses were in five categories: "strongly agree", "agree", "uncertain", "disagree", "strongly disagree". The instrument is consistent with Gibson and Dembo instrument (TES) and includes two independent subscales: Personal Science Teaching Efficacy (PSTE) and Science Teaching Outcome Expectancy (STOE). PSTE measured beliefs of teachers in their abilities to teaching science and STOE measured beliefs of teachers that students can learn science (Riggs & Enochs, 1990).

STEBI has also two versions which also includes two subscales (PSTE and STOE); the Science Teaching Efficacy Belief Instrument form A (STEBI-A) for inservice elementary teachers and the Science Teaching Efficacy Belief Instrument form B (STEBI-B) for preservice elementary teachers. Both the STEBI-A and STEBI-B have two subscales (PSTE and STOE) and consist of 25 items with a 5-point, Likert scale format: "strongly agree", "agree", "uncertain", "disagree", "strongly disagree".

STEBI is widely used in the studies of investigating science teaching efficacy beliefs of preservice and inservice teachers (Palmer, 2006; Ginn & Watter, 1990; Riggs & Jesunathadas, 1993; Scharmann & Riggs, 1995; Rubeck and Enochs, 1991). For example, Palmer (2006) conducted a study to investigate durability of changes in preservice primary teachers' self-efficacy. The instrument was STEBI-B which includes 23 items. Results showed that there were statistically significant changes for both PSTE and STOE over the course period. This means that the courses increased the teachers' beliefs in their capabilities to teaching science and their expectations on positive outcomes of teaching science.

Another study, in which STEBI-B was used, was conducted by Ginn and Watters (1990). Their study was a longitudinal study of preservice elementary teachers' personal and science teaching efficacy. The instrument was administered as pretest and posttest to the preservice teachers at Australian metropolitan University to monitor preservice teachers' sense of science teaching efficacy at different periods of their undergraduate program. There were not significant changes the scores of STOE of the preservice teachers.

Using STEBI, Riggs and Enochs (1990) found that the teachers who have higher sense of personal science teaching efficacy spent more time to science teaching and developing science concepts (Riggs & Jesunathadas, 1993), and preferred to behave more humanistic toward the students in the classroom (Enochs, Scharmann & Riggs, 1995). Rubeck and Enochs (1991) prepared another subject-specific instrument to measure chemistry teaching. By this instrument, they found that there was a relationship between chemistry teaching efficacy and choosing to teach chemistry.

Bandura (1997) also developed a scale to measure teacher sense of efficacy, which is called Teacher Self-Efficacy Scale. The scale consists of 30 items with 9-continuum scale and seven subscales: efficacy to influence decision making, efficacy to school resources, instructional self-efficacy, disciplinary self-efficacy, efficacy to enlist parental involvement, efficacy to influence community involvement, efficacy

to create a positive school climate. By this scale, Bandura aimed to measure teacher's sense of efficacy while trying not to be too specific. Because deciding the specificity level of teacher efficacy is a difficult problem. Bandura (1997) offered high numbers response options for the questions to understand obstacles that teachers face with to influence teachers' efficacy level.

Furthermore, Roberts and Henson (2000) developed a new subject matter specific instrument which was called Self-Efficacy Teaching and Knowledge Instrument for Science Teachers (SETAKIST). This instrument based on Riggs and Enochs' (1990) Science Teaching Efficacy Belief Instrument (STEBI). Roberts and Henson offered that science teacher self-efficacy has two factors: teaching efficacy and knowledge efficacy. Both factors included 8 items. They verified these two factors by confirmatory factor analysis. Teaching efficacy dimension of SETAKIST corresponds to personal teaching efficacy in both TES and STEBI. Knowledge efficacy dimension is linked with the content knowledge of teachers. By their study, Robert and Henson (2000) unified the teaching ability and perceived content knowledge in teaching efficacy, while the previous studies stressed teaching efficacy as in teachers' ability to influence student learning. But teaching efficacy also includes knowledge efficacy of teachers; i.e., a teacher's beliefs in his/her abilities of content knowledge.

Tschannen-Moran and Woolfolk Hoy (2001) developed another scale named as the Teacher Sense of Efficacy Scale (TSES) by taking considerations of Bandura's scale as a base. Tschannen-Moran and Woolfolk Hoy (2001) applied the instrument for three times to different participants from different school levels. After the third study, they selected high loaded items and developed the instrument having two form, long form with 24 items and short from with 12 items. They used principal-axis factoring with varimax rotation and it determined three factors for the long version of instrument. Tschannen-Moran and Woolfolk Hoy (2001) named these three subscales: efficacy for instructional strategies (8 items), efficacy for classroom management (8 items), and efficacy for student engagement (8 items). The reliability of whole scale was .94 and the reliabilities of the three subscales were .91 for

instructional strategies, .90 for efficacy for classroom management, and .87 for efficacy for student engagement. The construct validity of TSES was also examined. The items were on a 9-point rating scale which ranges from 1-Nothing, 3-Very little, 5-Some influence, 7-Quite A Bit, and 9-A great Deal. Total scores of TSES were related positively with both of the Rand items as well as PTE and GTE factors of Gibson and Dembo's instrument.

2.2.2. Integrated Model of Teacher Efficacy

Tschannen-Moran, Woolfolk Hoy and Hoy (1998) took a comprehensive look of historical developments of teacher efficacy scales. Tschannen-Moran et al. proposed an integrated teacher efficacy model (figure 2). The model has a cyclical nature. The sources of efficacy information, cognitive processes of a teacher, analyzing of teaching task and teaching competence, teacher efficacy beliefs, and performance interacts and work in a cyclical nature.

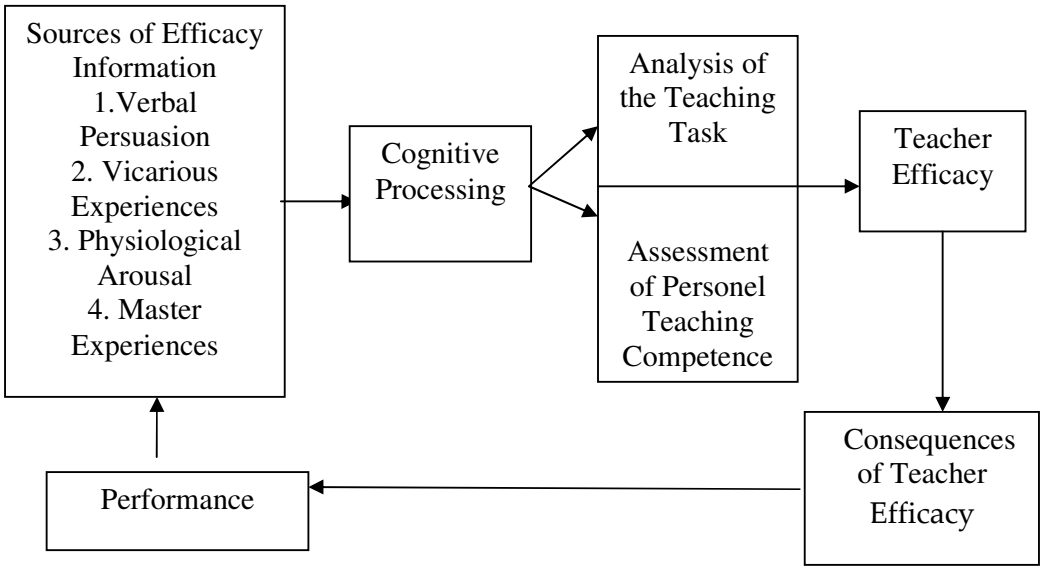

Figure 2.2. Multidimensional model of teacher efficacy (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998)

The model is based on Bandura's (1997) four sources of efficacy information: mastery experiences, vicarious experiences, verbal persuasion, and emotional states. Mastery experiences are the most effective source for teachers while assessing their abilities as well as analyzing the teaching task. Success on a difficult task with little assistance increases the teachers' sense of efficacy beliefs. In contrast, failure decreases efficacy beliefs. Although judging teaching competence is affected by all sources, particularly affected by mastery experience and emotional states. Teachers can assess their own capabilities, weaknesses and strengths, in actual teaching conditions. Normal levels of emotional states influence the teachers' beliefs about their teaching competences, help to focus on their own works, and use their capabilities affectively (Tschannen-Moran et al., 1998). By the vicarious experiences, teachers can get more details about the nature of teaching task, assess the quality of resources, and decide how much they are capable to teach the same subject. Especially, inexperienced teachers tend to be affected positively by successful accomplished task, and negatively by unsuccessful performances of their colleagues. Verbal persuasion is the feedback from the colleagues of a teacher for his or her specific performance (Tschannen-Moran et al., 1998). It is the source of information for a teacher what kind of capabilities and instructional strategies is required for a specific task. It may encourage the teachers if it is constructive rather than negative.

Although four sources have influence on efficacy beliefs, the assessment of the effects of these sources on efficacy beliefs depends on individual's cognitive process. In the model of Tschannen-Moran et al., cognitive process interacts with teaching tasks and its context and self-perception of teaching competence. Teaching tasks, its context and self-perception of teaching competence shapes a teacher's efficacy beliefs.

The model has two dimensions (analyzing the teaching task and its context, and self-perceptions of teaching competence) that are consistent with two factors of general teaching efficacy (GTE) and personal teaching efficacy (PTE). Teacher efficacy is context-specific. For example, a science teacher may feel efficacious in

teaching biology but may not feel efficacious while teaching chemistry. As well as teacher efficacy may change according to grade level of the students. When teaching tasks and its context changed teacher efficacy may decrease or increase. Thus, Tschannen et al. included teaching tasks and its context in their model. Analyzing of teaching task includes the factors such as; the assessment of students' abilities, instructional strategies, resources provided by school, and physical condition of teaching environment. Contextual factors include principal support, collegial support, and school climate. In addition, Bandura's (1997) four sources of self-efficacy information which are enactive experiences, verbal persuasion, emotional states and vicarious experience affect these two dimensions.

Both of the analyzing of teaching task and assessment of teaching competence related to teachers' sense of efficacy beliefs and sources of efficacy beliefs. Especially less experienced teachers used teaching task analysis and teaching competence assessment while shaping their efficacy beliefs. Then, teachers' sense of efficacy has an effect on teachers' performance and serves as new source of efficacy. Lower levels of efficacy cause lower level of effort and performance. Low performance and effort lead to lower level of efficacy.

2.2.3. Correlates of Teacher Efficacy

It is known that teacher efficacy influences both student achievement and teachers' behavior in the classroom. Studies showed that the teacher sense of efficacy was positively correlated with student achievement (Ashton & Webb, 1982; Ross, 1992). Midgley, Feldlaufer and Eccles (1989), in their longitudinal study, reported that there is strong correlation between student achievement and teacher efficacy. According to this study, high efficacy students more tended to be found in the classrooms with high efficacy teachers. The study also indicated that if the students are expected to feel low self-efficacy by a teacher, their self-efficacy decreased. Caprara and his colleagues (2006) supported this result with their study which aimed to investigate the effects of teachers' self-efficacy beliefs on student achievement.

According to the result of this study, teacher efficacy was a significant predictor of student academic achievement, explaining the 48% variance. They also found that efficacy beliefs affected teacher job satisfaction with explaining the variance of 28%. Teachers who have high self-efficacy beliefs tend to rearrange the environments to increase their job satisfaction. Teacher efficacy beliefs influence student success in several ways. The teachers who have higher sense of efficacy beliefs tend to implement innovations in the classroom and to think the implementation of new practices in education less difficult than those who have lower efficacy (Guskey, 1988; Tschannen-Moran & Woolfolk Hoy, 2002; Mulholland & Yaghi, 2001).

Friedman and Kass (2002) pointed out the impact of organization on teacher efficacy. School variables, which are part of a successful organization, such as school climate, administration behavior, and decision making process increase the teachers' motivation, performance, and satisfaction. Teacher efficacy affects the teachers' behavior in the classroom which is part of the school organization. Teachers were encompassed by two contexts which are classroom and school. Teacher efficacy was affected by the relation with students in classroom context and being a member of school as an organization. In classroom contexts teacher as a leader of classroom, transmits knowledge to the students while dealing with classroom problems. If a solution that teachers use to solve a problem results with positive outcomes teacher sense of efficacy beliefs were affected positively. In organizational context, if the teacher involves decision making process, influences the organization, takes active involvement in organization and establishes good relations with colleagues and administration teacher efficacy is also affected positively.

Moreover, teacher efficacy beliefs can be seen as an agent on teachers' behaviors in the classroom. Researchers have found strong relationship between teacher efficacy, their behavior and student achievement (Gibson & Dembo, 1984). Teacher self-efficacy is also an important variable of teachers' behavior regarding classroom management. Woolfolk and Hoy (1990) found that the teachers with higher self-efficacy beliefs tend to behave more humanistic and to apply less control to the students in their classroom than the teachers with lower self-efficacy beliefs.

But if the teachers with high teaching efficacy they tend to be more authoritative, it does not matter that they either low personal efficacy or high personal efficacy. Teaching efficacy seems to be more influence on teachers' authoritative behaviors than personal efficacy. Another study to investigate the teacher sense of efficacy and his/her behavior in the classroom was conducted by Enochs, Scharmann, Riggs (1995). They found that preservice teachers with higher science teaching self-efficacy scores had more humanistic behaviors for control and management in the classroom. Savran Gencer and Çakıroğlu (2005) also reported that Turkish preservice teachers expecting being effective teacher tend to use less control toward the students in the classroom. In addition, according to study of Gibson and Dembo (1984), as classroom management behavior, teachers with high sense of efficacy beliefs persist longer to difficulties dealing with students and less criticize the wrong answers of the students. Similarly, Morin and Battalio (2004), found that teachers' sense of efficacy beliefs affect their behaviors toward the students who have misbehaviors. The teachers with high personal teaching efficacy look for the reasons of the misbehaviors of the students. They do not see the students as victim and do not think that misbehaviors were done deliberatively. Previous studies have also showed that there is a relation between teacher efficacy and teacher effectiveness in the classroom (Enochs, Scharmann, Riggs, 1995; Gordon, 2001). Enochs, Scharmann, Riggs (1995) reported that preservice elementary teachers' with higher personal science teaching self-efficacy felt more effective in teaching science. Gordon (2001) supported that teacher efficacy is the marker of teacher effectiveness in the classroom. Additionally, teacher efficacy was related with democratic teaching practices (Tscahnnen-Moran, et al., 1998). Teacher efficacy belief is also a powerful variable which influences the time which teachers spend on teaching (Enochs, Scharmann, & Riggs, 1995).

There are many studies in different countries, which investigated the variables influencing the teachers' efficacy beliefs and investigated the sources of efficacy beliefs' of novice and experienced teachers, as well as preservice and inservice teachers. For example, Murshidi, Konting, Elas, and Fooi (2006) conducted another

study to investigate beginning teachers' sense of efficacy level in Sarawak and to investigate the relations of efficacy beliefs with demographic variables (gender, race, and types of teacher preparation program) as well as to investigate interactions between demographic variables. They used the TSES scale of Tschannen-Moran and Woolfolk Hoy (2002). The original version of TSES was translated into the Malay version. The participants included 328 beginning teachers (100 male and 228 female). Results indicated that teachers had highest mean score from classroom management efficacy (M = 6.74, SD = .77), and lowest mean score from student engagement (M = 6.34, SD = .94). Moreover, Murshidi et al. (2006) found that there were not significant difference between male and female teachers' overall sense of efficacy, instructional strategies efficacy, classroom management efficacy, and student engagement efficacy. However, race was significant for overall sense of efficacy, classroom management efficacy, and student engagement efficacy. In addition, it was found that types of teacher education program were also significant predictor for overall sense of efficacy and student engagement efficacy.

The study of Poulou (2007) aimed to explore the factors which influence preservice teachers' teaching efficacy, their perceptions of sources of personal teaching efficacy, their efficacy beliefs for instructional strategies, classroom management, and student engagement, and the relationships between the sources of personal teaching efficacy and efficacy beliefs for instructional strategies, classroom management, and student engagement. He used Teaching Efficacy Sources Inventory and TSES. The long version of TSES (24 items) was translated into Greek. The data obtained from 198 preservice teachers in primary education department. Result of the study indicated that teachers' motivation, teachers' personality characteristics, and enactive mastery with verbal persuasion had the highest scores as a source of teaching efficacy. Teachers had the highest scores for student engagement efficacy, whereas had the same scores for classroom management and instructional strategies. Personality characteristics, capabilities, enactive master with verbal persuasion, and university training became significant predictors for both efficacy for instructional strategies and efficacy for classroom management. For efficacy for student

engagement, personality characteristics, capabilities, motivation, and enactive master with verbal persuasion were the predictors.

Another study was the measurement of teacher efficacy of Hong Kong primary inservice teachers which was conducted by Cheung (2006). The instrument was the short version of TSES (12 items). The scale was adapted before in Kennedy and Hui's (2006) study and was found to be two factors: efficacy in learning and teaching (8items), efficacy in classroom management (4 items). Efficacy in teaching and learning was called general teacher efficacy. In the scale, the information about background of the teachers, school level taught, gender, age, and years of teaching experiences were included. The participants were 725 primary school teachers. Cheung (2006) reported that female teachers had higher general teacher efficacy than male teachers. Moreover female teachers were likely to be older and longer teaching experience than male teachers. The teachers had lower general teacher efficacy in direct subsidy schools than government, aided, and private schools.

Tschannen-Moran and Woolfolk Hoy (2006) conducted a study to investigate the effects of mastery experiences and contextual factors, i.e., teaching resources and support from colleagues, on novice and experienced teachers' efficacy beliefs. They use the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) including 24 items and three subscales, as well as including the items related with satisfaction with performance, demographics, and information about teaching context. The participants were 255 teachers with years of teaching experience that ranged from 1 to 29 with a mean of 8.2. Tschannen-Moran and Woolfolk Hoy conducted correlation analyses and multiple regression analysis to analyze the data. Correlation analyses revealed that demographics variables which were gender, race, teaching experience, age, teaching setting (urban, suburban, and rural) and school level variable were not significantly related with teacher sense of efficacy for both novice and experienced teachers. Although teaching resources (contextual variable) mostly related with teacher sense of efficacy for novice teachers not for experienced teachers. None of the verbal persuasion variable was significantly related with teacher sense of efficacy for novice teachers. Community

support and parental support were weakly related with sense of efficacy beliefs for experienced teachers. Satisfaction with performance (mastery experiences) was moderately related efficacy beliefs of both novice and experienced teachers. Satisfaction of experienced teachers with their performance was related with all of the support variables. However, novice teacher satisfaction with their performance was related with only parental and community support. Parallel hierarchical regression analyses were conducted for novice and experienced teachers. Four groups were entered: demographic variables (gender, race, and years of teaching experience), context variables (school level and setting, resource support), verbal persuasion (from administrator, from colleagues, from community, and from parents), mastery experiences (satisfaction with performance). Analyses showed that for novice teachers, verbal persuasion (support from colleagues and support from community), resources support, and mastery experiences (satisfaction with performance) were significant predictors of efficacy beliefs. For experienced teachers, contextual factor (school level taught), verbal persuasion, and mastery experiences were significantly predicted teacher efficacy beliefs. For both novice and experienced teachers demographics variables were not significant predictor of teacher sense of efficacy.

In a very similar study, Tschannen-Moran and Woolfolk Hoy (2002) investigated what kind of support affect mostly teacher efficacy. They used TSES as well as items that assessed rating of support (teaching resources, administrator support, collegial support, parental support and involvement, community support) and satisfaction with performance. For the support variables, to calculate the support index five items' mean scores were taken. The participants of the study were 255 inservice teachers from high school, middle school, elementary school and preschool. The mean of the teachers' years of teaching experience and ages were 8.2 and 34.5, respectively. The participants were grouped as novice and experienced. Results showed that experienced teachers gave higher scores for teaching resources, administrator support, and satisfaction with performance when compared with novice teachers. Teacher sense of efficacy was weakly related with support variable set for

total sample. Efficacy also strongly related with teaching resources, was weakly related with support from parents, but not related with support from administration, support from community, and support from colleagues. Satisfaction with performance was moderately related with teacher efficacy. When analysis was repeated separately for novice and experienced teachers, none of the support variables were significantly related with experienced teachers' sense of efficacy, only teaching resources were significantly related the efficacy beliefs of novice teachers.

In a regression analysis, there were no significant differences in teacher efficacy beliefs between preschool, high school, middle school, and elementary school teachers regarding gender, age, race, and teaching context. The score of student engagement subscale had lower mean when compared with other subscales among all groups except preschool teachers. Teaching level and years of teaching experience contributed significantly to teacher sense of efficacy. Elementary teachers have higher overall efficacy and all of three subscales than middle school and high school, but higher efficacy for instructional strategies than preschool teachers. Preschool teachers had higher efficacy for student engagement than middle school and high school teachers. Moreover, experienced teachers have higher scores on classroom management and instructional strategies subscales than novice teachers. However, there is no significant difference between the score of their efficacy for student engagement.

In Turkey, there are an increasing number of studies on teacher efficacy. Some of these studies were included in this part. For example, Çakıroğlu, Çakıroğlu and Boone (2005) compared elementary teachers' sense of efficacy beliefs in a Turkish university, and in a major university in USA. The data were collected by using Science Teaching Efficacy Beliefs Instrument (STEBI-B) (Enochs and Riggs, 1990). Participants were 100 preservice elementary teachers for Turkey, 79 preservice elementary teachers for USA. The results indicated that preservice elementary teachers in USA had significantly higher scores of personal teaching efficacy than preservice elementary teachers in Turkey. However, there was not significant difference between the scores of science teaching outcome expectancy in

two countries. In a similar study, Çakıroğlu (2008) compared the mathematics teaching efficacy beliefs of preservice elementary teachers in USA and Turkey using the Mathematics Teaching Efficacy Beliefs Instrument. He found that Turkish preservice teachers likely to have a stronger belief that student learning were influenced by teaching when compared with USA preservice teachers.

In another study, Savran Gencer and Çakıroğlu (2005) investigated Turkish preservice science teachers' science teaching efficacy beliefs and their classroom management beliefs. Data collected from 584 preservice science teachers by using Science Teaching Efficacy Belief Instrument (STEBI-B) and classroom control inventory. Results revealed that there were no significant differences between classroom management styles and science teaching efficacy beliefs between third and fourth-year preservice science teachers. Also there are no significant differences between preservice science teachers' efficacy beliefs and classroom management preference in terms of gender.

In addition to Savran Gencer and Çakıroğlu's study; Tekkaya, Çakıroğlu, and Özkan (2004) conducted a study with 299 preservice science teachers in order to investigate Turkish preservice science teachers' understanding science and their confidence in teaching science. The instruments were STEBI-B which was developed by Enochs and Riggs (1990) and the Science Concepts Test. The results revealed that Turkish preservice science teachers were confident about teaching science but held some misconceptions about basic science concepts.

In the other study regarding mathematics teaching efficacy beliefs, Işıksal and Çakıroğlu (2005) investigated the effect of gender and university grade level on preservice teachers' mathematics teaching efficacy belief and academic performance. The analysis was based on 258 preservice teachers from two universities in Ankara. Mathematics Teaching Efficacy Belief Instrument (MTEBI; Enochs, Smith & Huinker, 2000) was used to investigate teaching efficacy beliefs of pre-service mathematics teachers. The MTEBI has two subscales, personal mathematics teaching efficacy (PMTE) and mathematics teaching outcome expectancy (MTOE).

Reliability coefficients for the PMTE (13 items) and for the MTOE (8 items was reported as .83 and .77, respectively. Results revealed the significant effect of gender and university grade level on academic performance. However, there is no significant effect of gender and university grade level on mathematics teaching efficacy. Thus, gender and grade level are important in terms of impact on pre-service teachers' performance.

Çapa, Çakıroğlu and Sarıkaya (2005) developed a Turkish version of the Teachers' Sense of Efficacy Scale (TSES). The instrument was applied 628 preservice teachers from six universities located in four major cities in Turkey. Çapa et al. (2005) were conducted confirmatory factor analysis and found three factor loadings compatible with the study of Tschannen-Moran and Woolfolk Hoy (2001). The Turkish version of the instrument has three subscales, each has 8 items: efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. Çapa and her colleagues reported that the reliability of whole scale was .95, the reliabilities of subscales ranged from .85 to .88. In another study, Diken and Ozokcu (2004) investigated the factors influencing Turkish teachers' sense of efficacy by using TTES. The participants were special education and regular education teachers. TTES has reliable two factors consistent with previous studies (Gibson &Dembo, 1994; Hoy & Woolfolk, 1990). They reported that special education teachers had higher level of sense of efficacy. Also special education teachers' efficacy score were positively correlated with teachers' years of teaching experience with mental retardation students. In another study, Bıkmaz (2002) investigated the validity and reliability of Turkish version of STEBI for preservice elementary teacher. Turkish version of the instrument was administered to 279 preservice elementary teachers from three different universities in Turkey. Based on the factor analysis, Turkish version of the scale has two factors as indicated by Enochs and Riggs (1990) and includes 21 items. Author reported that Turkish version of the STEBI is a reliable and valid instrument to measure the science teaching efficacy beliefs of the Turkish teachers. In a similar study, Bıkmaz (2004) adapted the Turkish version of the science teaching self-efficacy belief instrument for

classroom teachers. Author was administered the instrument to the 234 classroom teachers from 59 different cities in Turkey. According to factor analysis, the instrument has two factors consistent with the original scale of Riggs and Enochs (1990). Final version of Turkish STEBI has 20 items. Author reported that it is a valid and reliable instrument to measure classroom teachers' science teaching self-efficacy beliefs.

Gerçek, Yılmaz, Köseoğlu, and Soran (2004) investigated preservice biology teachers' self-efficacy beliefs level and to examine their efficacy beliefs in terms of different variables. A total of 159 preservice biology teachers responded Turkish version of the STEBI (Bıkmaz, 2002). Results showed that preservice biology teachers have high teachers' efficacy beliefs. In addition, there were not significant differences in their efficacy beliefs in terms of gender, age, academic achievement, and types of graduated high school.

Üredi and Üredi (2004) compared the self-efficacy beliefs of preservice elementary teachers about science teaching regarding to their gender, class level and academic achievement level. Data were collected from a total of 405 preservice elementary teachers using Turkish version of the STEBI (Bıkmaz ,2002). The results showed that fourth year preservice elementary teachers have higher self-efficacy beliefs than third year preservice elementary teachers. Female have higher self-efficacy beliefs than males. It was also found that preservice elementary teachers who were high academic achievement have higher self-efficacy beliefs regarding science teaching and outcome expectancy.

Depending on above literature review, studies showed that the teacher efficacy is not only influences the teachers' behavior in the classroom but also students' achievement, motivation, and self-efficacy. Teachers with high sense of efficacy tend to implement innovations in the classroom, to behave more humanistic, and less critical toward their students than those with lower sense of efficacy. (Gibson & Dembo, 1984; Ashton & Webb, 1986; Anderson, Greene, & Loewen, 1988; Midgley, Feldlaufer, & Eccles, 1989; Hoy & Woolfolk, 1990; Ross, 1992; Guskey, 1988; Gibson & Dembo, 1994; Enochs, Scharmann, Riggs, 1995). Although

there are four sources (mastery experiences, vicarious experiences, and verbal persuasion and emational states) of efficacy information mastery experiences are the most powerful sources of self-efficacy information (Bandura, 1997; Usher & Pajares, 2006; Britner & Pajares, 2006).

CHAPTER III

METHOD OF THE STUDY

This chapter includes the information about design of the study, research questions and sub-questions, sample, data collection instrument, analysis of the data.

3.1. Design of the Study

The study aimed to investigate the predictors of teachers' efficacy beliefs related to instructional strategies, classroom management, and student engagement. The present study was conducted in the 2007-2008 academic year. The subjects were science, mathematics, and classroom teachers of the elementary schools.

The design of the study was a cross-sectional survey, due to the fact that information was collected from a predetermined group of people in a few or more weeks. Semi-structured interview was also conducted with teachers in order to take specific information (Fraenkel & Wallen, 2006).

3.2. Sample

According to the information obtained from Statistics Department of Ministry of Education, approximate total number of target population of classroom, science and mathematics teachers in Çankaya region of Ankara was 2,050 (1,660 classroom, 205 science, and 185 mathematics teachers).

The accessible population of this study was classroom, science, and mathematics teachers of elementary schools in 62 schools in Çankaya region. A total of 383 teachers were participated in the study.

On table 3.1, demographic characteristics of participants can be seen. Data were obtained from 383 teachers of whom 279 were female, 104 were male. Teachers' teaching experience ranged from 4 to 43 years with a mean of 22.48 (SD = 7.80) and their age ranged from 28 to 64 years (M = 46.66, SD = 6.38).

Table 3. 1. Demographic Characteristics of Participants

Variable	n Frequency	% Percent
Gender		
Male	104	73
Female	279	27
Teaching field		
Science	65	17.0
Mathematics	64	16.7
Classroom	254	66.3

3.3. Data Collection Instrument

The instrument had three main sections: teachers' demographic information, Teacher Sense of Efficacy Scale (TSES), and the sources of teacher efficacy.

3.3.1. Teachers' Demographic Information

In the first part of the questionnaire, some items regarding the demographic information of the teachers were included. Teachers were asked to report their gender, birth date, the university they graduated from, education level, years of teaching experience, teaching field, grade levels of teaching and total working hours in a week.

3.3.2. Teachers' Sense of Efficacy Scale (TSES)

The TSES (see on APPENDIX A) was developed by Tschannen-Moran and Woolfolk Hoy (2001) based on integrated model of teacher efficacy. Authors developed two forms of instrument, long form with 24 items and short from with 12 items. For the items, a 9-point rating scale which ranges from 1-Nothing, 3-Very little, 5-Some influence, 7-Quite A Bit, and 9-A great Deal was selected. Tschannen-Moran and Woolfolk Hoy conducted principal-axis factoring with varimax rotation

and determined three factors for the long version of instrument. Thus, the instrument included three subscales with each including 8 items: efficacy in instructional strategies (items 7, 10, 11, 17, 18, 20, 23, and 24), efficacy in classroom management (items 3, 5, 8, 13, 15, 16, 19, and 21), and efficacy in student engagement (items 1, 2, 4, 6, 9, 12, 14, and 22). Tschannen-Moran and Woolfolk Hoy (2001) reported that reliability coefficient was .91 for efficacy in instructional strategies, .90 for efficacy in classroom management, and .87 for efficacy in student engagement.

The sample items of TSES are as below:

Efficacy in instructional strategies

"How well can you implement alternative strategies in your classroom?"

Efficacy in classroom management

"How much can you do to calm a student who is disruptive or noisy?"

Efficacy in student engagement

"How much can you do to help your students value learning?"

In this study, the long and Turkish version of the TSES was used (see on APPENDIX B). The TSES adaptation into Turkish was conducted by Çapa, Çakıroğlu, and Sarıkaya (2005). Çapa et al. (2005) conducted confirmatory factor analysis and found three factor structure of TSES compatible with the study of Tschannen-Moran and Woolfolk Hoy (2001). Çapa and her colleagues reported that the reliability of whole scale was .95, the reliabilities of subscales ranged from .85 to .88.

3.3.3. Sources of Teacher Efficacy

Five questions were included to investigate the sources of teacher efficacy. These questions were adapted from the study of Tschannen-Moran and Woolfolk Hoy (2007). In the first question, the teachers were asked to rate their level of satisfaction with their performance. This question aimed to capture mastery experiences. The next three questions assessed the quality of support they had received in three areas: support provided by the colleagues, support provided by the

administrators, and parental support. These questions aimed to capture verbal persuasion. In the fifth question, teachers were asked to rate the resources provided by their school. All of these questions were assessed on a five-point scale ranging from "Not Effective" to "Very Effective". Mean scores were calculated for each item. Those scores indicate that how much degree the sources influence teachers' sense of efficacy beliefs.

3.4. Pilot Study

The purpose of the pilot study was to investigate whether the instrument was working properly for the inservice teachers. Seventeen schools were selected in Çankaya district of Ankara. The questionnaire was applied to 177 teachers (143 female, 34 male). Among 177 teachers, 139 (%78.5) of them were classroom teachers, 21 (%9.6) were science teachers, and 17 (%11.6) were mathematics teachers. One hundred forty three were female and 34 were male. Teachers had from 5 to 42 years of teaching experience with a mean of 19.02 (SD = 7.6) and ranged in age from 28 to 60 years (M = 46.42, SD = 5.96).

It was found that the reliability of whole scale was .96; the reliabilities of subscales were .90 for efficacy in instructional strategies, .89 for efficacy in classroom management, and .89 for efficacy in student engagement. As a result, no changes were made for the instrument.

3.5. Confirmatory Factor Analysis

Using the efficacy data of 383 teachers, confirmatory factor analysis was generated to test the three-factor model suggested by Tschannen-Moran and Woolfolk Hoy (2001). This analysis was performed using Analysis of Moment Structures 4.0 (AMOS; Arbuckle & Wothke, 1999). Complete output is presented in Appendix C. Figure 3.1 shows the parameter estimates and fit statistics. The following fit indices were used: the comparative fit index (CFI), the non-normed fit index (NNFI), and root mean square error of approximation (RMSEA) along with its

90% confidence intervals. The NNFI and CFI values higher than .95 show a good fit (Hu & Bentler, 1999). The NNFI and CFI of .98 showed a good fit of the oblique three-factor model to the efficacy data. Browne and Cudeck (1993) reported that values of RMSEA lower than .05 indicate a close fit of the model and values between .05 and .08 represent reasonable error of approximation. Values greater than .10 indicate poor fit. RMSEA was found to be .08 with a 90% confidence interval of .074-.086, indicating a mediocre fit. All of the parameters (including factor loadings and factor correlations) were statistically significant. These findings provided an evidence for the factorial validity of the TTSES scores with this sample of Turkish elementary teachers.

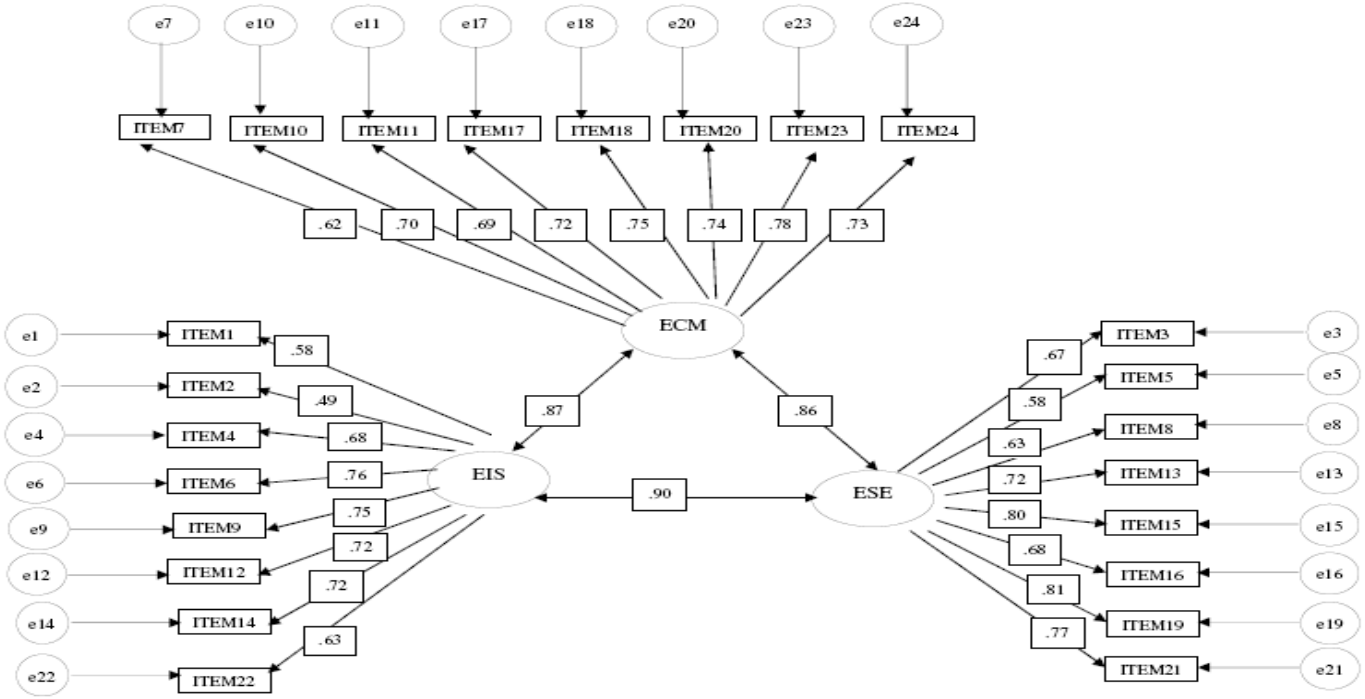

Figure 3.1. Confirmatory Factor Analysis of Turkish Teachers' Sense of Efficacy Scale

Note. item1-24: Teacher's sense of efficacy items; ECM: Efficacy in Classroom Management; EIS: Efficacy in Instructional Strategies; ESE: Efficacy in Student Engagement. All coefficients are significant at $p < .05$. $X^2 = 859.89$; df = 249. Root mean square error of approximation (RMSEA) = 0.08 (90% CI = 0.07- 0.08); the comparative fit index (CFI) = 0.98; the non-normed fit index (NNFI) = 0.98.

3.6. Reliability

In the present study, the reliability of whole scale was .95; the reliabilities of subscales were .90 for efficacy in instructional strategies, .88 for efficacy in classroom management, and .87 for efficacy in student engagement.

3.7. Variables

The dependent variables of this study were the overall teacher efficacy, the efficacy in instructional strategies, the efficacy in classroom management items, and the efficacy in student engagement. The independent variables of the study were: gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support, and teaching resource.

3.8. Data Analysis

In the present study, four separate hierarchical regression analyses were carried out for the overall teacher efficacy, the efficacy in instructional strategies, the efficacy in classroom management, and the efficacy in student engagement. The variables were entered in four blocks. The first block variables were gender and teaching fields, the second included years of teaching experience and satisfaction with performance, the third block included support from colleagues, support from parents, and support from administrators, and the last block included teaching resource. Analyses were conducted by using SPSS (Statistical Package for Social Sciences). The significance level for all research questions was defined as α=0.05.

Mean scores were calculated for each dimension of the TSES. Higher scores indicated higher efficacy beliefs in the corresponding dimension.

3.9. Assumptions

- The researcher did not influence the responses of the participants.
- All participants completed the questionnaire under the same conditions.
- All participants completed the questionnaire and answered the interview questions accurately and sincerely

3.10. Limitations

- The study was limited Çankaya region of Ankara.
- The subjects in the qualitative part of the study were limited for 10 teachers.

CHAPTER IV

RESULTS OF THE STUDY

4.1. Introduction

This chapter includes two main parts: The first part presents statistical analysis, mainly hierarchical regression analysis. The second part consists of findings obtained through interviews of the classroom, mathematics, and science teachers.

4.2. Hierarchical Regression Analysis

Hierarchical regression analysis is used to evaluate relationships between a group of independent variables and the dependent variable, controlling for the impact of a different group of the independent variables on the dependent variable. (Tabachnick & Fidell, 2007). Four separate hierarchical regression analyses were performed for four dependent variables: overall teacher efficacy, teacher efficacy in instructional strategies, teacher efficacy in classroom management, and teacher efficacy in student engagement. Criterion variables were gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support, and teaching resource provided by school. Teaching field had three levels (science, mathematics and classroom) and dummy coding was used while taking the science field as the reference category.

Before performing the hierarchical regression analysis, sample size was evaluated for both the main problem and sub-problems. According to Tabachnick and Fidell (2007), the minimum sample size can be calculated by the formula $N>50+8k$ where k is the number of criterion variables. The minimum sample size for this study was calculated as 122 with 9 predictors. The sample size ($N = 383$) of the present study was deemed appropriate.

4.2.1. Main Problem: Predictors of Overall Teacher Efficacy

The main problem was:

"How well do gender, teaching fields, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support and teaching resource provided by school predict overall teacher efficacy?"

The dependent variable was overall teacher efficacy. The predictor variables were entered in four blocks which were labeled as: demographic variables (gender and teaching field); mastery experiences (years of teaching experience and satisfaction with performance); support (support from colleagues, support from parents, and support from administrators); and context (quality of teaching resource).

4.2.1.1. Assumptions of Hierarchical Regression Analysis

Hierarchical regression analysis has several assumptions which are multicollinearity, normality, outliers, linearity, homoscedasticity, and independence of residuals (Tabachnick & Fidell, 2007). Before performing each hierarchical regression analysis, its assumptions were checked.

Normal distribution of data was tested by using Kolmogorov-Smirnov or Shapiro-Wilk tests. If the test is non-significant ($p > .05$) this means that the distribution is normal. If the test is significant ($p < .05$) this means distribution is not normal (Field, 2005). $D(383) = 0.051$, $p < .05$, Kolmogorov-Smirnov test is not significant. The data of overall teacher efficacy is normally distributed.

Multicollinearity exists when there are high correlations among the independent variables. In order to check multicollinearity there are different ways: (1) to check variance inflation factor (VIF) and tolerance values; (2) to examine bivariate correlations (Pearson) between independent variables. VIF values should be less than 10; the values of tolerance should be more than .20 to satisfy this

requirement (Field, 2005). According to Tabachnick and Fidell (2007), the correlation between independent variables should be less than .9.

Table 4.1 presented the tolerance and VIF values, Table 4.2, intercorrelations among the variables in order to check multicollinearity assumption. Findings indicated that the assumption was satisfied.

Table 4.1. Tolerance and VIF Values of Gender, Teaching Field, Years of Teaching Experience, Satisfaction with Performance, Support from Colleagues, Parental Support, Support from Administrators and Teaching Resources Variables for Multicollinearity Assumption

Variables	Tolerance	VIF
Gender	.879	1.137
Teaching field		
Science vs. mathematics teaching	.604	1.656
Science vs. classroom teaching	.587	1.705
Years of teaching experience	.850	1.177
Satisfaction with performance	.918	1.090
Support from colleagues	.702	1.425
Support from parents	.752	1.330
Support from administrators	.659	1.516
Teaching resources	.843	1.187

The normality assumption of the residuals can be evaluated by using histogram and normal probability plot of residuals. The distribution of the histogram should not be too peaked or too flat (Tabachnick & Fidell, 2007). As can be seen on figure 4.1, the normality assumption was satisfied.

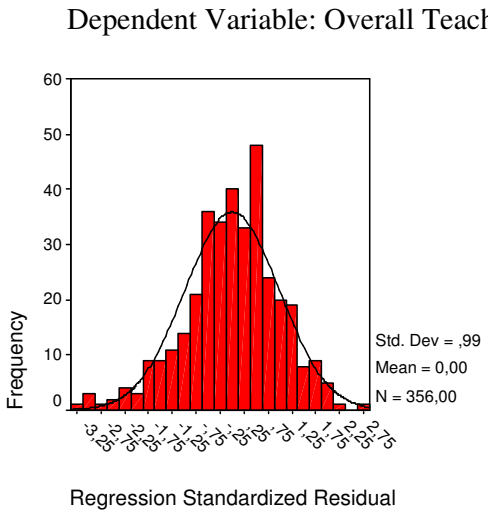

Figure 4.1. Histogram of Normality for Overall Teacher Efficacy

In order to evaluate the normality assumption, the normal probability plot also can be used. "If the actual distribution is normal, then the points for the cases fall along the diagonal running from lower to upper right, with some minor deviations due to random processes (Tabachnick & Fidell, 2007, p. 73). Normal probability plot of residual with figure 4.2 satisfied the assumption.

Table 4.2. Intercorrelations Among Independent Variables

Variable	*M*	*SD*	1	2	3a	3b	4	5	6	7	8	9
1. Overall teacher efficacy	7.19	.80	1.00									
2. Gender			.02	1.00								
3. Teaching field												
3a. Science vs. mathematics teaching			-.01	.15	1.00							
3b. Science vs. classroom teaching			.10	-.13	-.62	1.00						
4. Years of teaching experience	22.37	7.77	.31	.29	-.02	.10	1.00					
5. Satisfaction with performance	4.21	.50	.06	.05	.06	-.07	.18	1.00				
6. Support from colleagues	3.60	.98	.15	-.002	.07	-.03	-.04	.07	1.00			
7. Support from parent	2.76	1.17	.15	.09	-.004	.08	.15	.07	.35	1.00		
8. Support from administrators	3.42	1.05	.15	-.03	.05	-.07	-.004	.09	.50	.41	1.00	
9. Teaching resources	3.61	.98	.18	.03	.007	-.04	.08	.22	.27	.26	.29	1.00

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Overall Teacher Efficacy

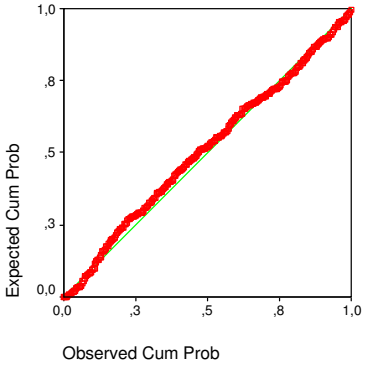

Figure 4.2. Normal Probability Plots for Overall Teacher Efficacy

Outliers may make the model biased because "they affect the values of the estimated regression coefficients" by pulling it toward themselves (Field, 2005, p. 162). In order to check for the outliers, Mahalanobis distances were investigated. According to Tabachnick and Fidell (2007), the critical value 16.92 for nine independent variables. Regarding the critical value eighteen outliers were found. After outliers were omitted, the hierarchical regression analysis was repeated. Since the results without outliers did not change, it was decided that they were included in data.

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. "If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular" (Tabachnick & Fidell, 2007, p.138). Linearity assumption can be determined by scatterplots. According to scatterplot on figure 4.3 which is not curved, the assumption was satisfied.

Homoscedasticity is the assumption that accepts the equal standard deviations of errors of independent variables for all scores of dependent variables (Tabachnick & Fidell, 2007). It can also be checked by the scatterplots. The interpretation of this plot is that the greater the spread on the vertical axis, the less valid is the assumption of constant variance (Field, 2005). As can be seen on figure 4.3, the assumption was satisfied.

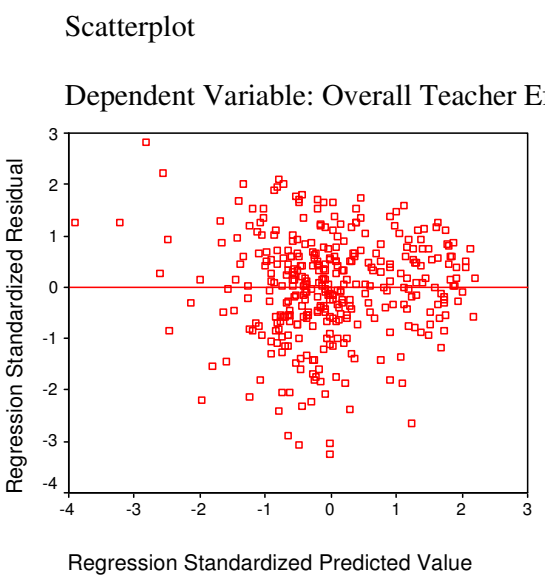

Figure 4.3. Scatterplot of the residual of Overall Teacher Efficacy

Independence of residuals assumption requires that the residuals do not follow a pattern from case to case. This assumption can be detected from Durbin-Watson value. The value of Durbin-Watson should be between 1 and 3 (Field, 2005). The independence of residuals assumption was satisfied with Durbin-Watson value of 1.82. Since all of the assumptions were provided, the contributions of independent variables on dependent variable were examined.

4.2.1.2. Findings of Regression Analysis

Table 4.3 shows the findings of hierarchical regression analysis for overall teacher efficacy. Step 1 included demographic variables, which are gender and teaching field. After step 1, R^2 = .003, ΔF (3,352) = .36, were not significant. None of the variables were significant predictors of overall teacher efficacy. Two variables were added in step 2: years of teaching experience and satisfaction with performance. After step 2, R^2 = .10, ΔF (2,350) = 19.41; $p < .01$. After controlling gender and teaching field, satisfaction with performance contributed significantly (sr^2 = 9.06) while years of teaching experience did not. After step 3, with the addition of support from colleagues, support from parents and, support from administrators, R^2 = .12, ΔF (3,347) = 2.83, $p < .05$. Addition of these variables resulted in significant increment in explained variances; however, none of the variables were significant in predicting overall teacher efficacy, after controlling for gender, teaching field, years of teaching experience, and satisfaction with performance. After step 4, with the addition of teaching resources, R^2 = .13, ΔF (1,346) = 2.62 were not significant. Addition of teaching resources did not contribute to improving R^2, while controlling other variables.

Table 4.3. Summary of Hierarchical Regression Analysis for Overall Teacher Efficacy by Demographic Variables, Mastery Experiences, Support and Context Variables.

Predictor Variable	*B*	SE	β	sr^2	*R*	R^2	ΔR^2	ΔF
Step 1 Demographics					.06	.003	.003	.36
(Constant)	7.10	.16		.008				
Gender	.16	.10	-.009	.27				
Science vs. mathematics teaching	.15	.15	.07	.07				
Science and classroom teaching	.06	.12	.03					
Step 2 Mastery experiences					.32	.10	.10	19.41**
Years of teaching experience	.004	.006	.04	.14				
Satisfaction with performance	.49*	.08	.31	9.06**				
Step 3 Support					.35	.12	.02	2.83*
Support from colleagues	-.03	.05	-.04	.12				
Support from parents	.06	.04	.09	.64				
Support from administrators	.08	.05	.11	.74				
Step 4 Context					.36	.13	.01	2.62
Teaching Resources	.07	.05	.09	.66				

Note. Dependent Variable = Overall Teacher Efficacy Total Score from TSES. *p < .05 **p < .01

4.2.2. Sub-Problem 1: Predictors of Efficacy in Instructional Strategies

The sub-problem was:

"How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support, and teaching resource provided by school predict the teacher efficacy in instructional strategies?"

4.2.2.1. Assumptions of Hierarchical Regression Analysis

Normal distribution of data was tested by using Kolmogorov-Smirnov or Shapiro-Wilk tests. If the test is non-significant ($p > .05$) this means that the distribution is normal. If the test is significant ($p < .05$) this means distribution is not normal (Field, 2005). $D(383) = 0.083$, $p < .05$, Kolmogorov-Smirnov test is not significant. The data of teacher efficacy in instructional strategies is normally distributed.

The following assumptions will be considered: multicollinearity, normality, outliers, linearity, homoscedasticity, and independence of residuals. Multicollinearity was not tested as it was considered in the main research question. Because predictor variables are same, findings will be same as well.

For the multicollinearity assumption, table 4.4 can be seen. The normality assumption of the residuals can be evaluated by using histogram and normal probability plot of residuals. As can be seen on figure 4.4, the normality assumption was satisfied.

Table 4.4. Intercorrelations Among Independent Variable

Variable	*M*	*SD*	1	2	3a	3b	4	5	6	7	8	9
1. Efficacy in Instructional Strategies	7.33	.86	1.00									
2. Gender			.05	1.00								
3. Teaching field												
3a. Science vs. mathematics teaching			.09	.15	1.00							
3b. Science vs. classroom teaching			-.06	-.13	-.62	1.00						
4. Years of teaching experience	22.37	7.77	.09	.29	-.02	.10	1.00					
5. Satisfaction with performance	4.21	.50	.33	.05	.06	-.07	.18	1.00				
6. Support from colleagues	3.60	.98	.09	-.002	.07	-.03	-.04	.07	1.00			
7. Support from parent	2.76	1.17	.13	.09	-.004	.08	.15	.07	.35	1.00		
8. Support from administrators	3.42	1.05	.17	-.03	.05	-.07	-.004	.09	.50	.41	1.00	
9. Teaching resources	3.61	.98	.20	.03	.007	-.04	.08	.22	.27	.26	.29	1.00

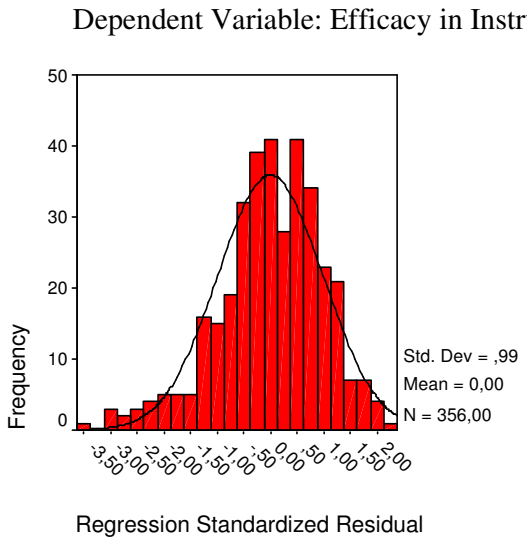

Figure 4.4. Histogram for Normality of Efficacy in Instructional Strategies

For checking the normality assumption, the probability plot also can be used. "If the actual distribution is normal, then the points for the cases fall along the diagonal running from lower to upper right, with some minor deviations due to random processes (Tabachnick & Fidell, 2007, p. 73). Normal probability plot of residual (figure 4.5) satisfied the assumption.

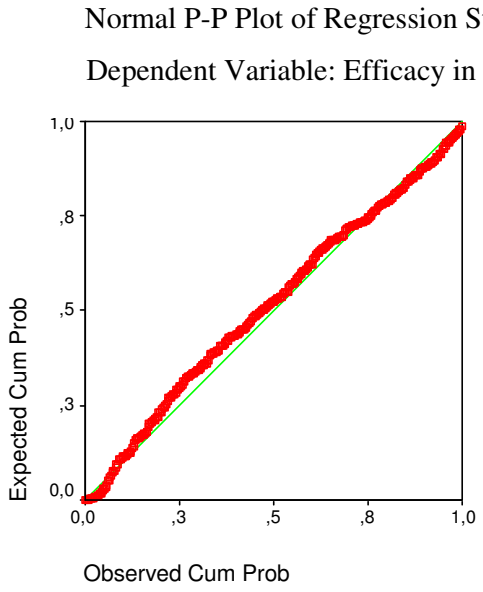

Figure 4.5. Normal Probability Plots for Efficacy in Instructional Strategies

In order to check for the outliers, Mahalanobis distances were investigated. According to Tabachnick and Fidell (2007), the critical value 16.92 for nine independent variables. Regarding the critical value eighteen outliers were found. After they were omitted, the hierarchical regression analysis was repeated. Since the results without outliers did not change, it was decided that they were included in data.

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. “If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular” (Tabachnick & Fidell, 2007). Linearity assumption can be determined by scatterplots. According to scatterplot (figure 4.6) which is not curved, the assumption was satisfied.

Homoscedasticity is the assumption that accepts the equal standard deviations of errors of independent variables for all scores of dependent variables (Tabachnick & Fidell, 2007). The interpretation of this plot is that the greater the spread on the vertical axis, the less valid is the assumption of constant variance (Field, 2005). As can be seen on figure 4.6, the assumption was satisfied.

Scatterplot

Dependent Variable: Efficacy in Instructional Strategies

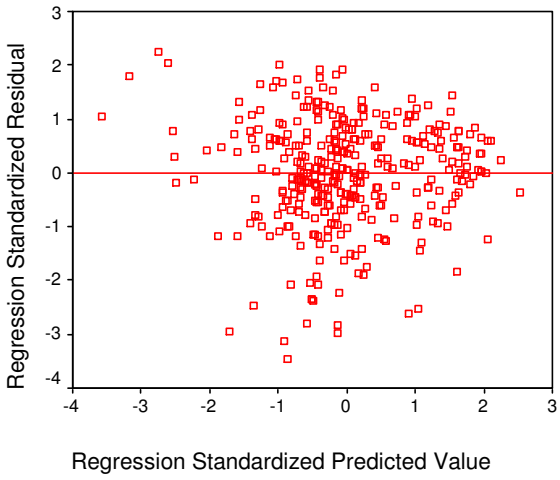

Figure 4.6. Scatterplot of the residual for Efficacy in Instructional Strategies

Independence of residuals assumption requires that the residuals do not follow a pattern from case to case. This assumption can be detected from Durbin-Watson value. The value of Durbin-Watson should be between 1 and 3 (Field, 2005). The independence of residuals assumption was satisfied with Durbin-Watson value of 1.72. Since all of the assumptions were provided, the contributions of independent variables on dependent variable were examined.

4.2.2.2. Findings of Regression Analysis

Table 4.4 shows the findings of hierarchical regression analysis of teacher efficacy in instructional strategies. Step 1 included demographic variables, which are gender and teaching field. After step 1, R^2 = .01, ΔF (3,352) = 1.17, were not significant. None of the variables were significant predictor of teacher efficacy in instructional strategies. Two variables were added in step 2: years of teaching experience and satisfaction with performance. After step 2, R^2 = .11, ΔF (2,350) = 20.49, $p < .01$. After controlling gender and teaching field, satisfaction with performance contributed significantly (sr^2 = 9.73) while years of teaching experience did not. After step 3, with the addition of support from colleagues, support from parents, and support from administrators, R^2 = .14, ΔF (3,347) = 2.89, $p < .05$. Addition of these variables resulted in significant increment in explained variances; however, none of the variables were significant in predicting teacher efficacy in instructional strategies, after controlling for gender, teaching field, years of teaching experience, and satisfaction with performance. After step 4, with the addition of teaching resources, R^2 = .14, ΔF (1,346) = 3.42 were not significant. Addition of teaching resources did not contribute to improving R^2, while controlling other variables.

Table 4.5. Summary of Hierarchical Regression Analysis of Efficacy in Instructional Strategies by Demographic Variables, Mastery Experiences, Support and Context Variables

Predictor Variable	*B*	SE	β	sr^2	*R*	R^2	ΔR^2	ΔF
Step 1 Demographics					.10	.01	.01	1.17
(Constant)	7.19	.17		.15				
Gender	.08	.10	.04	.48				
Science vs. mathematics teaching	.21	.16	.09	.002				
Science and classroom teaching	.01	.12	.005					
Step 2 Mastery experiences					.34	.11	.10	20.49**
Years of teaching experience	.003	.006	.02	.005				
Satisfaction with performance	.55*	.09	.32	9.73**				
Step 3 Support					.37	.14	.02	2.89*
Support from colleagues	-.02	.05	-.02	.04				
Support from parents	-.05	.04	.07	.34				
Support from administrators	.10	.05	.12	.96				
Step 4 Context					.38	.14	.01	3.42
Teaching Resources	.09	.05	.10	.85				

Note. Dependent Variable = Efficacy in Instructional Strategies Total Score from TSES. *p < .05 **p < .01

4.2.3. Sub-Problem 2: Predictors of Efficacy in Classroom Management

Sub-problem was:

"How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support, and teaching resource provided by school predict the teacher efficacy in classroom management?"

4.2.3.1. Assumptions of Hierarchical Regression Analysis

Normal distribution of data was tested by using Kolmogorov-Smirnov or Shapiro-Wilk tests. If the test is non-significant ($p > .05$) this means that the distribution is normal. If the test is significant ($p < .05$) this means distribution is not normal (Field, 2005). $D(383) = 0.066$, $p < .05$, Kolmogorov-Smirnov test is not significant. The data of teacher efficacy for classroom management efficacy is normally distributed.

The following assumptions will be considered: multicollinearity, normality, outliers, linearity, homoscedasticity, and independence of residuals. Multicollinearity was not tested as it was considered in the main research question. Because predictor variables are same, findings will be same as well.

For the multicollinearity assumption, table 4.6 can be seen. The normality assumption of the residuals can be evaluated by using histogram and normal probability plot of residuals. As can be seen on figure 4.7, the normality assumption was satisfied.

Table 4.6. Intercorrelations Among Independent Variable

Variable	*M*	*SD*	1	2	3a	3b	4	5	6	7	8	9
1. Efficacy in Classroom Management	7.28	.89	1.00									
2. Gender			-.02	1.00								
3. Teaching field												
3a. Science vs. mathematics teaching			.07	.15	1.00							
3b. Science vs. classroom teaching			-.06	-.13	-.62	1.00						
4. Years of teaching experience	22.37	7.77	.05	.29	-.02	.10	1.00					
5. Satisfaction with performance	4.21	.50	.27	.05	.06	-.07	.18	1.00				
6. Support from colleagues	3.60	.98	.04	-.002	.07	-.03	-.04	.07	1.00			
7. Support from parent	2.76	1.17	.07	.09	-.004	.08	.15	.07	.35	1.00		
8. Support from administrators	3.42	1.05	.10	-.03	.05	-.07	-.004	.09	.50	.41	1.00	
9. Teaching resources	3.61	.98	.11	.03	.007	-.04	.08	.22	.27	.26	.29	1.00

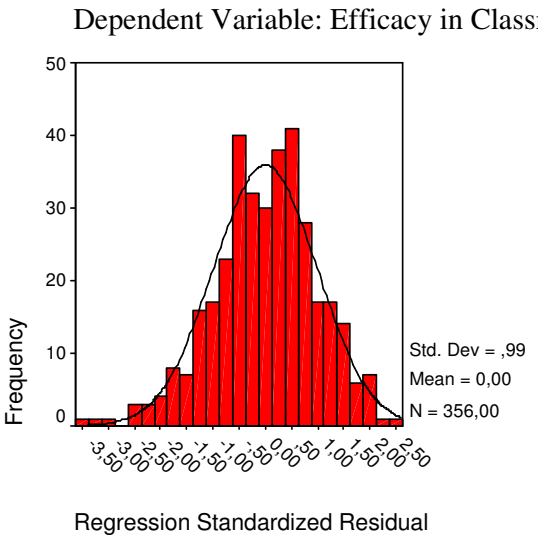

Figure 4.7. Histogram of Normality of Efficacy in Classroom Management

For checking the normality assumption, the probability plot also can be used. "If the actual distribution is normal, then the points for the cases fall along the diagonal running from lower to upper right, with some minor deviations due to random processes (Tabachnick & Fidell, 2007, p. 73). Normal probability plot of residual (figure 4.8) satisfied the assumption.

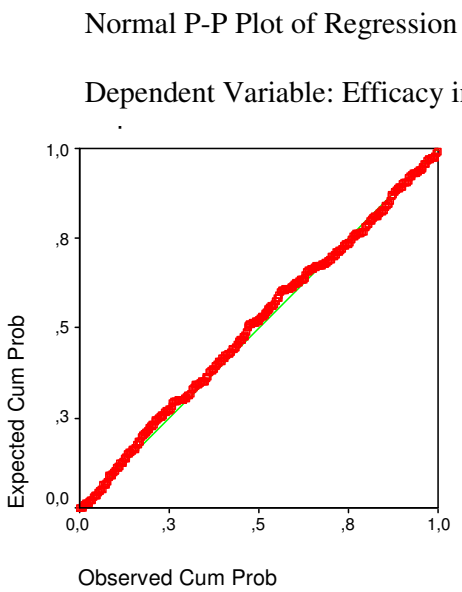

Figure 4.8. Normal Probability Plots for Efficacy in Classroom Management

In order to check for the outliers, Mahalanobis distances were investigated. According to Tabachnick and Fidell (2007), the critical value 16.92 for nine independent variables. Regarding the critical value twelve outliers were found. After they were omitted, the hierarchical regression analysis was repeated. Since the results without outliers did not change, it was decided that they were included in data.

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. “If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular” (Tabachnick & Fidell, 2007). Linearity assumption can be determined by scatterplots. According to scatterplot (figure 4.9) which is not curved, the assumption was satisfied.

Homoscedasticity is the assumption that accepts the equal standard deviations of errors of independent variables for all scores of dependent variables (Tabachnick & Fidell, 2007). The interpretation of this plot is that the greater the spread on the vertical axis, the less valid is the assumption of constant variance (Field, 2005). It can be checked by satterplot. As can be seen on figure 4.9, the assumption was satisfied.

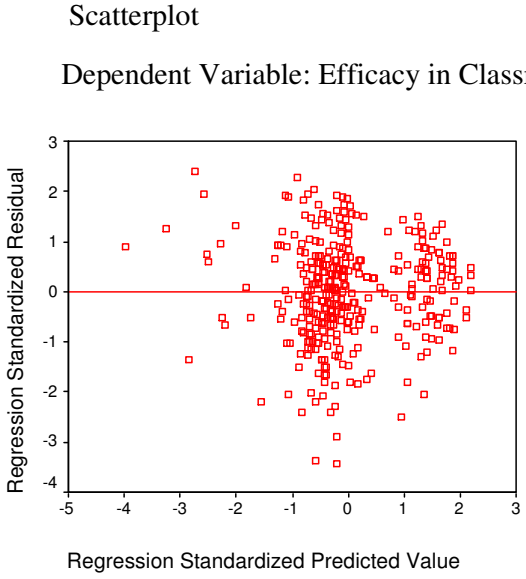

Figure 4.9. Scatterplot of the residual of Efficacy in Classroom Management

Independence of residuals assumption requires that the residuals do not follow a pattern from case to case. This assumption can be detected from Durbin-Watson value. The value of Durbin-Watson should be between 1 and 3 (Field, 2005). The independence of residuals assumption was satisfied with Durbin-Watson value of 1.85. Since all of the assumptions were provided, the contributions of independent variables on dependent variable were examined.

4.2.3.2. Findings of Regression Analysis

Table 4.5 shows the findings of hierarchical regression analysis for teacher efficacy in classroom management. Step 1 included demographic variables, which are gender and teaching field. After step 1, R^2 = .01, ΔF (3,352) = 0.72, were not significant none of the variables were significant predictor of teacher efficacy in classroom management. Two variables were added in step 2: years of teaching experience and satisfaction with performance. After step 2, R^2 = .08, ΔF (2,350) = 13.87, $p < .01$. After controlling gender and teaching field, satisfaction with performance contributed significantly (sr^2 = 6.92) while years of teaching experience did not. After step 3, wit the addition of support from colleagues, support from parents, and support from administrators, R^2 = .09, ΔF (3,347) = 0.81, $p < .05$. Addition of these variables resulted in significant increment in explained variances; however, none of the variables were significant in predicting teacher efficacy in classroom management, after controlling for gender, teaching field, years of teaching experience, and satisfaction with performance. After step 4, with the addition of teaching resources, R^2 = .09, ΔF (1,346) = 0.52 were not significant. Addition of teaching resources did not contribute to improving R^2, while controlling other variables.

Table 4.7. Summary of Hierarchical Regression Analysis of Efficacy in Classroom Management by Demographic Variables, Mastery Experiences, Support and Context Variables

Predictor Variable	*B*	SE	β	sr^2	*R*	R^2	ΔR^2	ΔF
Step 1 Demographics					.08	.01	.01	.72
(Constant)	7.35	.18		.008				
Gender	-.06	.11	-.03	.23				
Science vs. mathematics teaching	.15	.16	.06	.03				
Science and classroom teaching	-.04	.13	-.02					
Step 2 Mastery experiences					.28	.08	.07	13.87**
Years of teaching experience	.002	.006	.01	.013				
Satisfaction with performance	.48*	.09	.27	6.92**				
Step 3 Support					.29	.09	.01	.81
Support from colleagues	-.03	.06	-.03	.06				
Support from parents	.03	.05	.04	.14				
Support from administrators	.06	.05	.07	.29				
Step 4 Context					.32	.09	.001	.52
Teaching Resources	.04	.05	.04	.14				

Note. Dependent Variable = Efficacy in Classroom Management Total Score from TSES. *p < .05 **p < .01

4.2.4. Sub-Problem 3: Predictors of Efficacy in Student Engagement

Sub-problem was:

"How well do gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from administrators, parental support, and teaching resource provided by school predict the teacher efficacy in student engagement?

4.2.4.1. Assumptions of Hierarchical Regression Analysis

Normal distribution of data was tested by using Kolmogorov-Smirnov or Shapiro-Wilk tests. If the test is non-significant ($p > .05$) this means that the distribution is normal. If the test is significant ($p < .05$) this means distribution is not normal (Field, 2005). $D(383) = 0.057$, $p < .05$, Kolmogorov-Smirnov test is not significant. The data of teacher efficacy in student engagement is normally distributed.

The following assumptions will be considered: multicollinearity, normality, outliers, linearity, homoscedasticity, and independence of residuals. Multicollinearity was not tested as it was considered in the main research question. Because predictor variables are same, findings will be same as well.

For the multicollinearity assumption, table 4.8 can be seen. The normality assumption of the residuals can be evaluated by using histogram and normal probability plot of residuals. As can be seen on figure 4.10, the normality assumption was satisfied.

Table 4.8. Intercorrelations Among Independent Variable

Variable	*M*	*SD*	1	2	3a	3b	4	5	6	7	8	9
1. Efficacy in Student Engagement	6.95	.83	1.00									
2. Gender			.01	1.00								
3. Teaching field												
3a. Science vs. mathematics teaching			-.03	.15	1.00							
3b. Science vs. classroom teaching			.09	-.13	-.62	1.00						
4. Years of teaching experience	22.37	7.77	.13	.29	-.02	.10	1.00					
5. Satisfaction with performance	4.21	.50	.28	.05	.06	-.07	.18	1.00				
6. Support from colleagues	3.60	.98	.06	-.002	.07	-.03	-.04	.07	1.00			
7. Support from parent	2.76	1.17	.21	.09	-.004	.08	.15	.07	.35	1.00		
8. Support from administrators	3.42	1.05	.16	-.03	.05	-.07	-.004	.09	.50	.41	1.00	
9. Teaching resources	3.61	.98	.20	.03	.007	-.04	.08	.22	.27	.26	.29	1.00

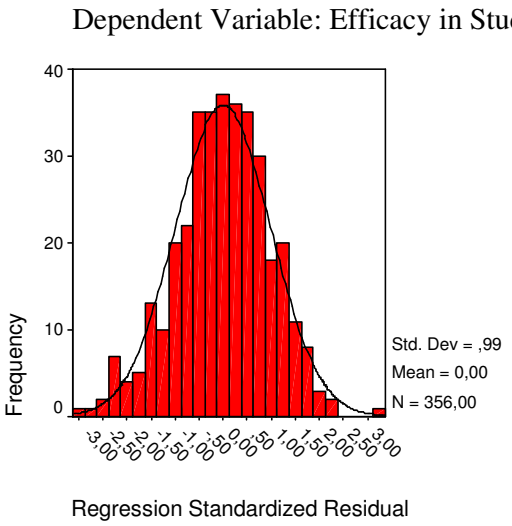

Figure 4.10. Histogram of Normality for Efficacy in Student Engagement

For checking the normality assumption, the probability plot also can be used. "If the actual distribution is normal, then the points for the cases fall along the diagonal running from lower to upper right, with some minor deviations due to random processes (Tabachnick & Fidell, 2007, p. 73). Normal probability plot of residual (figure 4.11) satisfied the assumption.

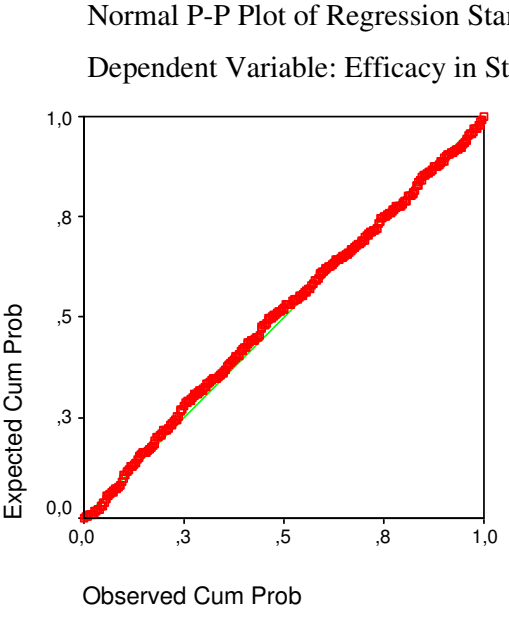

Figure 4.11. Normal Probability Plots of Efficacy in Student Engagement

In order to check for the outliers, Mahalanobis distances were investigated. According to Tabachnick and Fidell (2007), the critical value 16.92 for nine independent variables. Regarding the critical value sixteen outliers were found. After they were omitted, the hierarchical regression analysis was repeated. Since the results without outliers did not change, it was decided that they were included in data.

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. "If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular" (Tabachnick & Fidell, 2007). Linearity assumption can be determined by scatterplots. According to scatterplot (figure 4.12) which is not curved, the assumption was satisfied.

Homoscedasticity is the assumption that accepts the equal standard deviations of errors of independent variables for all scores of dependent variables (Tabachnick & Fidell, 2007). The interpretation of this plot is that the greater the spread on the vertical axis, the less valid is the assumption of constant variance (Field, 2005). It can be checked by the scatterplots . As can be seen on figure 4.12, the assumption was satisfied.

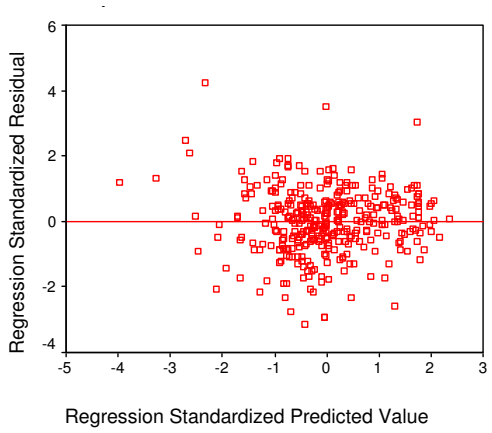

Figure 4.12. Scatterplot of the residual for Efficacy in Student Engagement

Independence of residuals assumption requires that the residuals do not follow a pattern from case to case. This assumption can be detected from Durbin-Watson value. The value of Durbin-Watson should be between 1 and 3 (Field, 2005). The independence of residuals assumption was satisfied with Durbin-Watson value of 1.99. Since all of the assumptions were provided, the contributions of independent variables on dependent variable were examined.

4.2.4.2. The Findings of Regression Analysis

Table 4.6 shows the findings of hierarchical regression analysis of teacher efficacy in student engagement. Step 1 included demographic variables, which are gender and teaching field. After step 1, R^2 = .01, ΔF (3,352) = 1.07 p < 05. Addition of variables made significant increment of teacher efficacy in student engagement. Two variables were added in step 2: years of teaching experience and satisfaction with performance. After step 2, R^2 = .10, ΔF (2,350) = 16.92, p < .01. After controlling gender and teaching field, satisfaction with performance contributed significantly (sr^2 = 7.18) while years of teaching experience did not. After step 3, with the addition of support from colleagues, support from parents, and support from administrators, R^2 = .13, ΔF (3,347) = 4.98, p < .05. Addition of these variables resulted in significant increment in explained variances; just parental support was significant in predicting teacher efficacy in student engagement (sr^2 = 1.74), after controlling for gender, teaching field, years of teaching experience, satisfaction with performance. After step 4, with the addition of teaching resources, R^2 = .14, ΔF (1,346) = 4.04, p < .05 were significant (sr^2 =0.01).

In summary, analysis of data indicated that gender, teaching field, and years of teaching experience variables were not significant predictors for overall teacher efficacy, efficacy in instructional strategies, efficacy in classroom management, and efficacy in student engagement, however satisfaction with performance variable made significant contribution with all dependent variables. While support variables and teaching resources did not predicted the overall teacher efficacy, efficacy in instructional strategies, and efficacy in classroom management, only parental support and teaching resources predicted efficacy in student engagement.

Table 4.9. Summary of Hierarchical Regression Analysis of Efficacy in Student Engagement by Demographic Variables, Mastery Experiences, Support and Context Variables

Predictor Variable	*B*	SE	β	sr^2	*R*	R^2	ΔR^2	ΔF
Step 1 Demographics					.10	.01	.01	1.07*
(Constant)	6.78	.17						
Gender	-.03	.10	.15	.02				
Science vs. mathematics teaching	.08	.15	.04	.08				
Science and classroom teaching	.20	.12	.11	.79				
Step 2 Mastery experiences					.31	.10	.09	16.92**
Years of teaching experience	.01	.01	.08	.53				
Satisfaction with performance	.46*	.09	.27	7.18**				
Step 3 Support					.37	.13	.04	4.98**
Support from colleagues	-.06	.05	-.07	.33				
Support from parents	.11*	.04	.15	1.74*				
Support from administrators	.09*	.05	.11	.79				
Step 4 Context					.38	.14	.01	4.04*
Teaching Resources	.09*	.05	.11	0.01*				

Note. Dependent Variable = Efficacy in Student Engagement Total Score from TSES. *p < .05 **p < .01

CHAPTER V

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

In this chapter, the findings of the present study are discussed. Following this discussion, implications of the major findings and recommendations for future research are presented.

5.1. Discussion

The purpose of the present study was to examine predictors of teachers' sense of efficacy including gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from parents, support from administration, and teaching resources.

According to the results of this study, demographic variables, gender and teaching field did not predict overall teacher efficacy, efficacy in instructional strategies, efficacy in classroom management, and efficacy in student engagement. This finding is consistent with the previous studies in literature (Çakıroğlu, Çakıroğlu & Boone, 2005; Mursihi et al., 2006; Savran Gencer & Çakıroğlu, 2005; Tarmalu & Õim, 2005; Tschannen-Moran & Woolfolk Hoy, 2007). For example, according to the results of Tschannen-Moran and Woolfolk Hoy (2007), demographic variables such as gender, race, and school level taught were not significantly related to teachers' self-efficacy for both novice and experienced teachers. Mursihi et al. (2006) supported this result with their findings. They found no significant difference between male and female beginning teachers in Sarawak regarding overall teacher efficacy. Similarly, in their study, Tarmalu and Õim (2005) applied Gibson and

Dembo's (1984) TES scale to 255 Estonian practicing and student teachers and found no gender differences with respect to teachers' self-efficacy. With a population of Turkish preservice teachers, Savran Gencer and Çakıroğlu (2005) found that there is no significant difference between male and female teachers' scores of personal science teaching efficacy and science teaching outcome expectancy beliefs. One exception was found with the study conducted with Hong Kong primary in-service teachers (Cheung, 2006). The author reported that female teachers of inservice primary teachers had significantly higher general teaching efficacy than male teachers. Tschannen-Moran and Woolfolk Hoy (2007) suggested using demographic variables as control variables. They stated that "there is no theoretical reason to suspect they would be related to self-efficacy beliefs except possibly the availability of vicarious experiences with similar models in the intended realm of teaching" (Tschannen-Moran & Woolfolk Hoy, 2007, p. 9).

The present study showed that mastery experiences; measured by years of teaching experience and satisfaction with performance, explained 10% variance in overall teacher efficacy, 10% variance in efficacy in instructional strategies, 7.3% variance in efficacy in classroom management, and 8.7% variance in efficacy in student engagement. Years of teaching experience was not related to any of the criterion variables, but it was found that teachers' satisfaction with their performance significantly predicted the overall teachers' sense of efficacy, efficacy in instructional strategies, efficacy in classroom management, and efficacy in student engagement. This result is consistent with the study of Tschannen-Moran and Woolfolk Hoy (2002, 2007). Tschannen-Moran and Woolfolk Hoy (2007) found that years of teaching experience was not related with teacher efficacy beliefs of novice and experienced teachers and satisfaction with performance was

related with efficacy beliefs of both novice and experienced teacher. In a similar study, Tschannen-Moran and Woolfolk (2002) also found that teacher efficacy beliefs were not predicted by years of teaching experience, whereas preschool, elementary school, middle school, and high school teachers' efficacy beliefs were predicted by satisfaction with performance. On the other hand, there are some studies which reported significant relationship between years of teaching experiences and teachers' sense of efficacy (Cheung, 2006; Onafowora, 2004; Tailamu & Õim, 2005). Novice teachers were found to be less efficacious in their teaching capabilities than experienced teachers.

Bandura (1997) stated that mastery experiences are the most powerful source of efficacy beliefs because they depend on individual experiences. Thus, it is expected that mastery experiences were the significant predictor of teacher sense of efficacy beliefs. On the other hand, Bandura (1997) also stated that how people interpret their performance is as important as the amount of mastery experiences they have. Thus, the present study provided support for Bandura's assertion that not years of teaching experiences but satisfaction with that experience is related with teachers' sense of efficacy beliefs.

Interestingly, the findings indicated that teaching resources did not make significant contribution to teachers' sense overall efficacy, efficacy in instructional strategies, efficacy in classroom management, but significantly contributed to efficacy in student engagement. The significance of teaching resources for teachers' efficacy in student engagement may be related with the changes in the Turkish curriculum. The new curriculum has encouraged teachers to make more activities to activate the students in learning and teaching process. Thus, the importance of teaching resources increased for teachers. Tschannen-

Moran and Woolfolk Hoy (2002, 2007) reported that teaching resources provided by school became a significant predictor for novice teachers' sense of efficacy but not for experienced teachers' sense efficacy.

Finally, it was found that support from colleagues, support from parents, and support from administrators were not related with overall teacher efficacy, efficacy in instructional strategies, and efficacy in classroom management. Only parental support was related with efficacy in student engagement. These variables were considered as verbal persuasion in the present study. Tschannen-Moran and Woolfolk Hoy (2007) reported that as teachers gain experiences in the field, verbal persuasion may not play a less significant role to boost teachers' efficacy beliefs. In the present study, the mean years of teaching experience was 23. Experienced teachers, thus, may not need support from other persons.

Overall, this study presented which predictors significantly contributed to teacher sense of efficacy. But it may be necessary to explore the alternative predictors with future research.

5.2. Implications for Practice

Teacher self-efficacy has been linked to important variables in educational settings, such as classroom management, teachers' positive behaviors in the classroom and student success. It is worthwhile to investigate teachers' sense of efficacy. The present study investigated the predictors of teacher self-efficacy.

Based on the findings of this study and previous research following suggestions can be offered:

- Mastery experiences are the strongest source of self-efficacy. Thus, preservice teachers should be encouraged to gain more teaching experiences as possible as in actual teaching situations for example in voluntary educational institutions (e.g. eğitim gönüllüleri vakfı).

- The relationship between education faculties and elementary schools should be increased in order to provide the flow of information between preservice teachers and experienced teachers. The cooperation between university and schools may support increasing teachers' efficacy beliefs since the cooperation creates more conscious and lively educational atmosphere. Cooperation gives a great chance to the preservice teachers and teacher educators in the university to see the actual applications of theoretical based information that they use in university conditions in the classroom conditions. By this way, the teachers both in schools and universities may identify the reasons of educational problems and produce solutions for them. Also this cooperation will give the chance to the teachers in the schools to aware of the produced knowledge and discussion conducted in academic environment. The experienced teachers may improve their knowledge about classroom management, teaching and learning process and the sources of the problems in the classrooms.

- The numbers and qualities of teaching resources should be increased. Hereby, the teachers may be more confident applying different activities in the classroom by the new curriculum.

- To increase the parental support and involvement in the school parent-teacher association should be improved and supported by both teachers and administrators.

5. 3. Recommendations for Future Research

There are some suggestions of present study for future research:

- Beside quantitative study, qualitative studies should be conducted to assess elementary teachers' self-efficacy beliefs and sources of those efficacy beliefs.

- In the present study, data were collected at a single point in time. Future studies should expand these findings by utilizing a longitudinal design to explore changes in efficacy beliefs of teachers. In addition, cross-sectional studies should be performed to compare efficacy beliefs of teachers at different level of their careers (i.e., preservice teachers, novice teachers, and experienced teachers) and at different school levels.

- This study examined predictors of teachers' sense of efficacy including gender, teaching field, years of teaching experience, satisfaction with performance, support from colleagues, support from parents, support from administration, and teaching resources. However, there may be other alternative variables important for efficacy formation. Further studies should explore these variables.

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APPENDICES

APPENDIX A

TEACHERS' SENSE OF EFFICACY SCALE

Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	1	2	3	4	5	6	7	8	9
2. How much can you do to help your students think critically?	1	2	3	4	5	6	7	8	9

3. How much can you do to control disruptive behavior in the classroom?	1	2	3	4	5	6	7	8	9
4. How much can you do to motivate students who show low interest in school work?	1	2	3	4	5	6	7	8	9
5. To what extent can you make your expectations clear about student behavior?	1	2	3	4	5	6	7	8	9
6. How much can you do to get students to believe they can do well in school work?	1	2	3	4	5	6	7	8	9
7. How well can you respond to difficult questions from your students ?	1	2	3	4	5	6	7	8	9

8. How well can you establish routines to keep activities running smoothly?	1	2	3	4	5	6	7	8	9
9. How much can you do to help your students value learning?	1	2	3	4	5	6	7	8	9
10. How much can you gauge student comprehension of what you have taught?	1	2	3	4	5	6	7	8	9
11.To what extent can you craft good questions for your students?	1	2	3	4	5	6	7	8	9
12. How much can you do to foster student creativity?	1	2	3	4	5	6	7	8	9
13. How much can you do to get children to follow classroom rules?	1	2	3	4	5	6	7	8	9

14. How much can you do to improve the understanding of a student who is failing?	1	2	3	4	5	6	7	8	9
15. How much can you do to calm a student who is disruptive or noisy?	1	2	3	4	5	6	7	8	9
16. How well can you establish a classroom management system with each group of students?	1	2	3	4	5	6	7	8	9
17. How much can you do to adjust your lessons to the proper level for individual students?	1	2	3	4	5	6	7	8	9
18. How much can you use a variety of assessment strategies?	1	2	3	4	5	6	7	8	9
19.How well can you keep a few problem students form ruining an entire lesson?	1	2	3	4	5	6	7	8	9

20. To what extent can you provide an alternative explanation or example when students are confused?	1	2	3	4	5	6	7	8	9
21. How well can you respond to defiant students?	1	2	3	4	5	6	7	8	9
22. How much can you assist families in helping their children do well in school?	1	2	3	4	5	6	7	8	9
23. How well can you implement alternative strategies in your classroom?	1	2	3	4	5	6	7	8	9
24. How well can you provide appropriate challenges for very capable students?	1	2	3	4	5	6	7	8	9

APPENDIX B

ÖĞRETMEN ÖZ-YETERLİK ÖLÇEĞİ

Sevgili Meslektaşım,

Bu anket, öğretmenlerin öğretmenlik mesleğine yönelik düşüncelerini anlamak amacıyla hazırlanmıştır. Öğretmen olarak vereceğiniz cevaplar, öğretmen yetiştirme programlarının geliştirilmesine önemli katkılarda bulunacaktır. Sizlerin görüşleri bizler için çok önemlidir. Cevaplarınız kesinlikle gizli tutulacaktır. Araştırmanın amacının gerçekleşmesi cevaplarınızın içtenliğine ve soruları eksiksiz olarak cevaplamanıza bağlıdır.

Yardımlarınız için şimdiden teşekkür ederim.

Bölüm I: ***Kişisel Bilgiler***

Cinsiyetiniz: ❑ Kadın ❑ Erkek

Doğum tarihiniz (yıl): _____

Mezun olduğunuz üniversitenin adı: _____

Eğitim düzeyiniz:❑ 4 yıllık üniversite ❑ Enstitü ❑ Yüksek lisans

❑ Doktora ❑ Diğer _____

Bölüm II: ***Okul Bilgileri***

Mesleki tecrübeniz (yıl): _____

Görev yapmakta olduğunuz okul: _____

Branş: ❑ Sınıf öğretmeni ❑ Fen bilgisi(6-8) ❑ Matematik(6-8) ❑ Diğer_____

Şu anda ders verdiğiniz sınıf düzeyi (leri): ❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7 ❑8

Aşağıdaki soruları dikkatlice okuyup size en uygun olan kutucuğun içine (X) işareti koyunuz.	**yetersiz**	**çok az yeterli**	**biraz yeterli**	**oldukça yeterli**	**çok yeterli**
1. Öğretmenlik mesleğindeki performansınızı geçmiş yıllardaki başarınızı düşünerek nasıl değerlendirirsiniz?	❑	❑	❑	❑	❑
2. Profesyonel anlamda meslektaş, veli ve idari personelden ne derece destek almaktasınız?					
• Meslektaş	❑	❑	❑	❑	❑
• Veli	❑	❑	❑	❑	❑
• İdari personel	❑	❑	❑	❑	❑
3. Okulunuzda dersinize hazırlanırken ulaşabildiğiniz /kullanabildiğiniz kaynaklar ne düzeydedir?	❑	❑	❑	❑	❑

Bölüm III Aşağıdaki öğretmenlik mesleğine yönelik ifadeler belirtilmiştir. Bu ifadelere yönelik kendinizi ne derece yeterli hissettiğinizi 1'den 9'a kadar olan seçeneklerden birini işaretleyerek belirtiniz.	Yetrsiz		çok az yeterli		biraz yeterli		oldukça yeterli		çok yeterli
1. Çalışması zor öğrencilere ulaşmayı ne kadar başarabilirsiniz?	1	2	3	4	5	6	7	8	9
2. Öğrencilerin eleştirel düşünmelerini ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
3. Sınıfta dersi olumsuz yönde etkileyen davranışları kontrol etmeyi ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
4. Derslere az ilgi gösteren öğrencileri motive etmeyi ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
5. Öğrenci davranışlarıyla ilgili beklentilerinizi ne kadar açık ortaya koyabilirsiniz?	1	2	3	4	5	6	7	8	9

6. Öğrencileri okulda başarılı olabileceklerine inandırmayı ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
7. Öğrencilerin zor sorularına ne kadar iyi cevap verebilirsiniz?	1	2	3	4	5	6	7	8	9
8. Sınıfta yapılan etkinliklerin düzenli yürümesini ne kadar iyi sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
9. Öğrencilerin öğrenmeye değer vermelerini ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
10. Öğrettiklerinizin öğrenciler tarafından kavranıp kavranmadığını ne kadar iyi değerlendirebilirsiniz?	1	2	3	4	5	6	7	8	9
11. Öğrencilerinizi iyi bir şekilde değerlendirmesine olanak sağlayacak soruları ne ölçüde hazırlayabilirsiniz?	1	2	3	4	5	6	7	8	9

12. Öğrencilerin yaratıcılığının gelişmesine ne kadar yardımcı olabilirsiniz?	1	2	3	4	5	6	7	8	9
13. Öğrencilerin sınıf kurallarına uymalarını ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
14. Başarısız bir öğrencinin dersi daha iyi anlamasını ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
15. Dersi olumsuz yönde etkileyen ya da derste gürültü yapan öğrencileri ne kadar yatıştırabilirsiniz?	1	2	3	4	5	6	7	8	9
16. Farklı öğrenci gruplarına uygun sınıf yönetim sistemi ne kadar iyi oluşturabilirsiniz?	1	2	3	4	5	6	7	8	9
17. Derslerin her bir öğrencinin seviyesine uygun olmasını ne kadar sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9

18. Farklı değerlendirme yöntemlerini ne kadar kullanabilirsiniz?	1	2	3	4	5	6	7	8	9
19. Birkaç problemli öğrencinin derse zarar vermesini ne kadar iyi engelleyebilirsiniz?	1	2	3	4	5	6	7	8	9
20. Öğrencilerin kafası karıştığında ne kadar alternatif açıklama ya da örnek sağlayabilirsiniz?	1	2	3	4	5	6	7	8	9
21. Sizi hiçe sayan davranışlar gösteren öğrencilerle ne kadar iyi baş edebilirsiniz?	1	2	3	4	5	6	7	8	9
22. Çocuklarının okulda başarılı olmalarına yardımcı olmaları için ailelere ne kadar destek olabilirsiniz?	1	2	3	4	5	6	7	8	9
23. Sınıfta farklı öğretim yöntemlerini ne kadar iyi uygulayabilirsiniz?	1	2	3	4	5	6	7	8	9

24. Çok yetenekli öğrencilere uygun öğrenme ortamını ne kadar sağlıyabilirsiniz?	1	2	3	4	5	6	7	8	9

APPENDIX C

AMOS COMPLETE OUTPUT

Your model contains the following variables

E1	observed	endogenous
E2	observed	endogenous
E4	observed	endogenous
E6	observed	endogenous
E9	observed	endogenous
E12	observed	endogenous
E14	observed	endogenous
E22	observed	endogenous
E24	observed	endogenous
E23	observed	endogenous
E20	observed	endogenous
E18	observed	endogenous
E17	observed	endogenous
E11	observed	endogenous
E10	observed	endogenous
E7	observed	endogenous
E21	observed	endogenous
E19	observed	endogenous
E16	observed	endogenous
E15	observed	endogenous
E13	observed	endogenous

E8	observed endogenous
E5	observed endogenous
E3	observed endogenous
c1	unobserved exogenous
ESE	unobserved exogenous
c2	unobserved exogenous
c4	unobserved exogenous
c6	unobserved exogenous
c9	unobserved exogenous
c12	unobserved exogenous
c14	unobserved exogenous
c22	unobserved exogenous
EIS	unobserved exogenous
c24	unobserved exogenous
c23	unobserved exogenous
c20	unobserved exogenous
c18	unobserved exogenous
c17	unobserved exogenous
c11	unobserved exogenous
c10	unobserved exogenous
c7	unobserved exogenous
ECM	unobserved exogenous
c21	unobserved exogenous
c19	unobserved exogenous
c16	unobserved exogenous

c15 unobserved exogenous

c13 unobserved exogenous

c8 unobserved exogenous

c5 unobserved exogenous

c3 unobserved exogenous

Number of variables in your model: 51

Number of observed variables: 24

Number of unobserved variables: 27

Number of exogenous variables: 27

Number of endogenous variables: 24

Summary of Parameters

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed:	27	0	0	0	0	27
Labeled:	0	0	0	0	0	0
Unlabeled:	21	3	27	0	24	75
Total:	48	3	27	0	24	102

Number of variables in your model: 51

Number of observed variables: 24

Number of unobserved variables: 27

Number of exogenous variables: 27

Number of endogenous variables: 24

NOTE:

The model is recursive.

Sample size: 383

Model: Default model

Computation of degrees of freedom

Number of distinct sample moments: 324

Number of distinct parameters to be estimated: 75

Degrees of freedom: 249

0e 9 0,0e+000 -1,0979e+000 1,00e+004 5,22939541920e+003 0 1,00e+004

1e* 6 0,0e+000 -1,6860e+000 5,48e+000 1,73211996709e+003 20 1,83e-001

2e 3 0,0e+000 -1,7090e+000 1,18e-001 1,62079211092e+003 8 6,66e-001

3e 2 0,0e+000 -9,6004e-002 1,90e-001 1,40070589873e+003 5 9,54e-001

4e 1 0,0e+000 -2,4268e-002 7,52e-001 1,12512161051e+003 8 6,82e-001

5e 0 4,9e+003 0,0000e+000 1,60e+000 9,12289162967e+002 8 9,45e-001

6e 0 1,9e+003 0,0000e+000 9,15e-001 8,94709594888e+002 2 0,00e+000

7e 0 2,1e+003 0,0000e+000 3,10e-001 8,64249727937e+002 1 1,15e+000

8e 0 2,7e+003 0,0000e+000 1,70e-001 8,60227668489e+002 1 1,14e+000

9e 0 2,6e+003 0,0000e+000 4,94e-002 8,59892398029e+002 1 1,07e+000

10e 0 2,7e+003 0,0000e+000 7,38e-003 8,59887558936e+002 1 1,01e+000

11e 0 2,7e+003 0,0000e+000 1,19e-004 8,59887557458e+002 1 1,00e+000

Minimum was achieved

Chi-square = 859,888

Degrees of freedom = 249

Probability level = 0,000

Maximum Likelihood Estimates

Regression Weights:	Estimate	S.E.	C.R.	Label
E2 <----- ESE	0,756	0,092	8,225	
E4 <----- ESE	1,054	0,100	10,517	
E6 <----- ESE	1,090	0,098	11,181	
E9 <----- ESE	1,100	0,098	11,166	
E12 <---- ESE	1,111	0,102	10,844	
E14 <---- ESE	1,232	0,109	11,293	
E22 <---- ESE	1,124	0,114	9,871	
E24 <---- EIS	1,000			
E23 <---- EIS	1,006	0,067	14,982	
E20 <---- EIS	0,894	0,063	14,166	
E18 <---- EIS	0,997	0,070	14,272	
E17 <---- EIS	0,941	0,069	13,725	
E11 <---- EIS	0,800	0,061	13,137	

E10 <---- EIS	0,767	0,057	13,351
E7 <----- EIS	0,760	0,064	11,830
E21 <---- ECM	1,000		
E19 <---- ECM	1,055	0,063	16,794
E16 <---- ECM	0,895	0,065	13,733
E15 <---- ECM	1,042	0,063	16,531
E13 <---- ECM	0,864	0,059	14,679
E8 <----- ECM	0,803	0,064	12,539
E5 <----- ECM	0,675	0,059	11,345
E3 <----- ECM	0,833	0,062	13,373
E1 <----- ESE	1,000		

Standardized Regression Weights:	Estimate
E2 <----- ESE	0,491
E4 <----- ESE	0,687
E6 <----- ESE	0,755
E9 <----- ESE	0,753
E12 <---- ESE	0,719
E14 <---- ESE	0,768
E22 <---- ESE	0,626
E24 <---- EIS	0,725
E23 <---- EIS	0,782
E20 <---- EIS	0,741
E18 <---- EIS	0,745
E17 <---- EIS	0,721

E11 <---- EIS 0,687

E10 <---- EIS 0,698

E7 <----- EIS 0,621

E21 <---- ECM 0,773

E19 <---- ECM 0,809

E16 <---- ECM 0,682

E15 <---- ECM 0,797

E13 <---- ECM 0,722

E8 <----- ECM 0,630

E5 <----- ECM 0,575

E3 <----- ECM 0,665

E1 <----- ESE 0,577

Intercepts:	Estimate	S.E.	C.R.	Label
E1	6,196	0,068	91,400	
E2	6,935	0,060	115,287	
E4	6,931	0,060	115,261	
E6	7,473	0,057	131,970	
E9	7,257	0,057	126,780	
E12	7,020	0,061	115,971	
E14	6,748	0,063	107,225	
E22	6,973	0,070	99,162	
E24	7,288	0,064	113,060	
E23	7,227	0,060	120,090	
E20	7,576	0,056	134,162	

E18	7,123	0,062	113,991
E17	6,884	0,061	112,382
E11	7,428	0,054	136,737
E10	7,449	0,051	145,258
E7	7,619	0,057	133,322
E21	7,386	0,062	120,021
E19	7,159	0,062	115,329
E16	6,816	0,062	109,106
E15	7,314	0,062	117,724
E13	7,373	0,057	129,552
E8	7,310	0,061	120,477
E5	7,576	0,056	135,858
E3	7,355	0,059	123,645

Covariances:	Estimate	S.E.	C.R.	Label
ECM <---> ESE	0,608	0,072	8,406	
ESE <---> EIS	0,630	0,075	8,351	
ECM <---> EIS	0,740	0,077	9,625	

Correlations:	Estimate
ECM <---> ESE	0,856
ESE <---> EIS	0,903
ECM <---> EIS	0,873

Variances:	Estimate	S.E.	C.R.	Label

ESE	0,585	0,098	5,948
EIS	0,833	0,104	8,006
ECM	0,862	0,099	8,744
c1	1,171	0,089	13,191
c2	1,048	0,078	13,420
c4	0,724	0,057	12,619
c6	0,524	0,043	12,067
c9	0,541	0,045	12,125
c12	0,674	0,054	12,429
c14	0,617	0,052	11,910
c22	1,147	0,088	12,991
c24	0,752	0,060	12,573
c23	0,537	0,045	12,036
c20	0,547	0,044	12,418
c18	0,664	0,053	12,433
c17	0,680	0,054	12,486
c11	0,595	0,046	12,827
c10	0,515	0,040	12,764
c7	0,765	0,058	13,108
c21	0,579	0,048	12,010
c19	0,506	0,044	11,511
c16	0,795	0,062	12,762
c15	0,537	0,046	11,734
c13	0,591	0,047	12,501
c8	0,846	0,065	13,013

c5	0,793	0,060	13,221
c3	0,753	0,058	12,884

Squared Multiple Correlations:	Estimate
E3	0,443
E5	0,331
E8	0,397
E13	0,521
E15	0,636
E16	0,465
E19	0,655
E21	0,598
E7	0,386
E10	0,488
E11	0,472
E17	0,520
E18	0,555
E20	0,549
E23	0,611
E24	0,525
E22	0,392
E14	0,590
E12	0,517
E9	0,566
E6	0,570

E4	0,473
E2	0,241
E1	0,333

Summary of models

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	75	859,888	249	0,000	3,453
Saturated model	324	0,000	0		
Independence model	24	38786,745	300	0,000	129,289

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0,978	0,973	0,984	0,981	0,984
Saturated model	1,000		1,000		1,000
Independence model	0,000	0,000	0,000	0,000	0,000

Model	PRATIO	PNFI	PCFI
Default model	0,830	0,812	0,817
Saturated model	0,000	0,000	0,000
Independence model	1,000	0,000	0,000

Model	NCP	LO 90	HI 90

Default model	610,888	525,434	703,925
Saturated model	0,000	0,000	0,000
Independence model	38486,745	37843,263	39136,519

Model	FMIN	F0	LO 90	HI 90
Default model	2,251	1,599	1,375	1,843
Saturated model	0,000	0,000	0,000	0,000
Independence model	101,536	100,751	99,066	102,452

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0,080	0,074	0,086	0,000
Independence model	0,580	0,575	0,584	0,000

Model	AIC	BCC	BIC	CAIC
Default model	1009,888	1020,392		
Saturated model	648,000	693,378		
Independence model	38834,745	38838,107		

Model	ECVI	LO 90	HI 90	MECVI
Default model	2,644	2,420	2,887	2,671
Saturated model	1,696	1,696	1,696	1,815
Independence model	101,662	99,977	103,363	101,670

Model	HOELTER .05	HOELTER .01

Default model	128	135
Independence model	4	4

Execution time summary:

Minimization: 0,203

Miscellaneous: 0,047

Bootstrap: 0,000

Total: 0,250