



Hacettepe University Graduate School of Social Sciences

Department of Foreign Language Teaching  
English Language Teaching

**THE RELATIONSHIP AMONG SELF-EFFICACY, ACADEMIC SELF-EFFICACY,  
PROBLEM SOLVING SKILLS AND FOREIGN LANGUAGE ACHIEVEMENT**

Bahram Mohammadi Behjoo

Master's Thesis

Ankara, 2013

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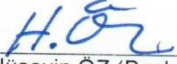
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## KABUL VE ONAY

Bahram Mohammadi Behjoo tarafından hazırlanan "The Relationship Among Self-Efficacy, Academic Self-Efficacy, Problem Solving Skills and Foreign Language Achievement" başlıklı bu çalışma, 20.06.2013 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yüksek Lisans Tezi olarak kabul edilmiştir.

  
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## BİLDİRİM

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Bahram Mohammadi Behjoo

*To my beloved family...*

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## ÖZET

MOHAMMADI BEHJOO, BAHRAM. The Relationship Among Self-Efficacy, Academic Self-Efficacy, Problem Solving Skills and Foreign Language Achievement. Master's Thesis, 2013.

Bu çalışma İngilizce öğretmen adaylarının, öz-yeterlik, akademik öz-yeterlik inançları, problem çözme becerileri ve yabancı dil başarısı arasındaki olası ilişkiyi incelemeyi amaçlamaktadır. Bunu yapmak üzere, üç anket üzerinden çalışmanın verileri toplanmıştır. Solberg'in (1993) Üniversite Öz-yeterlik Envanteri, İngilizce öğretmenliği adayların öz-yeterliliklerini ölçmek amacıyla kullanılmıştır. Ölçek, 19 maddeden oluşan, ders-yeterliği (7 madde), sosyal-yeterlik (8 madde), ve oda arkadaşı-yeterliği (4 madde) alt başlıklarıyla 0 (tamamen güvensiz), 1 (çok güvensiz), 2 (güvensiz), 3 (bir miktar güvensiz), 4 (kararsız), 5 (bir miktar güvenli), 6 (güvenli), 7 (çok güvenli) ve son olarak 8 (tamamen güvenli) seçeneklerinden oluşan toplam 9 seçenekli bir Likert ölçeği içermektedir.

Birinci sınıf İngilizce öğretmenliği öğrencilerinin Akademik Öz-yeterlik İnançları'nı ölçen ve 'çok az'dan (1) 'çok fazla'ya değişen (5) 5 seçenekli 33 maddeden oluşan bir Likert ölçeği olan Üniversite Akademik Öz-yeterlik Ölçeği Owen ve Froman'dan (1988) uyarlanmıştır. Ölçeğin güvenilirliği  $r = .827$ 'dir. Bu çalışmada Akademik Öz-yeterlik İnançları ile yabancı dil başarısı açısından, erkek ve kadın grupları arasında istatistiksel olarak anlamlı bir fark gözlemlenmiştir.

Bu çalışma aynı zamanda, İngilizce öğretmenliği adaylarının problem çözme becerileri ve yabancı dil başarısı arasında anlamlı bir ilişki olup olmadığını da ortaya koymayı amaçlamaktadır. Üç aşamalı olan, Heppner ve Petersen (1982) tarafından geliştirilen Problem-Çözme Envanteri veri toplamak üzere kullanılmıştır. Ölçek, Problem Çözmeye Yönelik Güven (11 madde), Yaklaşım-Sakinme Tarzı (16 madde) ve Kişisel Kontrol (5 madde) alt başlıklarıyla İngilizce öğretmenliği bölümü öğrencilerinin problem çözme becerilerini ölçen, her biri 'kesinlikle katılıyorum'dan (1) 'kesinlikle katılmıyorum'a (6) değişen altı seçenekli Likert ölçeği 32 maddeden oluşmaktadır. Ölçeğin iç tutarlılık güvenilirliği  $r = .832$ 'dir.

Bu çalışmada, problem çözme becerilerinin alt bileşenlerinin İngilizce öğretmenliği adaylarının dil öğrenimindeki başarıları üzerine en iyi tahminleri sunduğu gözlenmiştir. Ek olarak, araştırmacı, akademik öz-yeterlik, öz-yeterlik ve problem çözme becerileri gelişiminde cinsiyetin bir etken olup olmadığını da ortaya koymaya çalışmıştır. Son olarak, araştırmacı yüksek başarılı ve düşük başarılı öğrenciler arasındaki olası farklılıkları da incelemiştir. SPSS'in 17. versiyonu toplanan veriyi analiz etmek üzere kullanılmıştır. Beş adet araştırma sorusunu cevaplamak üzere, Pearson Product Moment Correlation Coefficient, yabancı dil başarısı, öz-yeterlik, akademik öz-yeterlik ve problem çözme becerileri arasındaki korelasyon katsayısını belirlemek üzere kullanılmıştır. Regresyon analizi ise öz-yeterliğin hangi üç alt bileşeninin anlamlı ve güçlü bir yabancı dil başarısı tahmini sunacağını anlamak üzere kullanılmıştır. Independent Sample t-test de, yüksek başarılı İngilizce öğretmenliği öğrencileri ile düşük başarılılar arasında, öz-yeterlik, akademik öz-yeterlik ve problem çözme becerileri açısından fark olup olmadığını anlamak üzere kullanılmıştır.

Bu araştırmanın bulguları yabancı dil başarısı ve bu üç değişken arasında anlamlı bir korelasyon olduğunu ortaya çıkarmıştır. Bulgular cinsiyetin öz-yeterlik, akademik öz-yeterlik ve problem çözme becerileri için bir tahmin unsuru olmadığını göstermiştir. Son olarak, yüksek başarılı öğrenciler ile düşük başarılılar arasında öz-yeterlik, akademik öz-yeterlik ve problem çözme becerileri açısından anlamlı bir farklılık bulunmamıştır.

### **Anahtar Kelimeler**

Öz-yeterlik, akademik öz-yeterlik, problem çözme becerileri, sosyal-bilişsel teori, sosyal davranış, kendine güvenme, özgüven, yabancı dil başarısı, motivasyon, karşılıklı determinizm, akademik motivasyon

## ABSTRACT

MOHAMMADI BEHJOO, BAHRAM. The Relationship Among Self-Efficacy, Academic Self-Efficacy, Problem Solving Skills and Foreign Language Achievement. Master's Thesis, 2013.

This study aims to scrutinize the possible relationship between *Self-Efficacy (SE)*, *Academic Self-Efficacy Beliefs (ASE)*, *Problem Solving Skills (PSS)* and *Foreign Language Achievement (FLA)* among prospective ELT teachers. To do so, the data for the study were collected through three questionnaires. Solberg et al.'s (1993) College Self-Efficacy Inventory (CSEI) was utilized to measure Self-Efficacy of prospective ELT teachers. It contains three subscales Course-Efficacy (7 items), Social-Efficacy (8 items) and Roommate-Efficacy (4 items) totally 19 items using 9 point-Likert type scale ranging from 0 (totally unconfident), 1 (very unconfident), 2 (unconfident), 3 (somewhat unconfident), 4 (undecided), 5 (somewhat confident), 6 (confident), 7 (very confident) and finally, 8 (totally confident).

College Academic Self-Efficacy Scale was adapted from Owen & Froman (1988), consisting of 33 items measuring freshman prospective ELT teacher's Academic Self-Efficacy Beliefs as a whole which uses a 5-point Likert scale ranging from 'very little' (1) to 'quite a lot' (5). The reliability of the scale was  $r = .827$ . In this study it has been observed that there is statistically a significant relationship between *Academic Self-Efficacy Beliefs* and foreign language achievement among male and female groups.

This study also aims to find out if there is a significant relationship between problem solving skills and foreign language achievement among prospective ELT teachers. The three dimensional Problem Solving Inventory (PSI), developed by Heppner & Petersen (1982), was used to collect the data. It consists of 32 items measuring ELT students problem solving skills in subscales of Problem Solving Confidence (11 items), Approach-Avoidance Style (16 Items) and Personal Control (5 items), each of which uses a six-point Likert scale ranging from 'strongly agree' (1) to 'strongly disagree' (6). The internal consistency reliability of the scale was  $r = .832$ .

In this study, it was observed that the subcomponents of PSS are the best predictors of prospective ELT teachers' achievements in language learning. Additionally, the researcher tried to find out whether gender is a predictor in developing ASE, SE and PSS. Finally, the researcher investigated the possible differences between high successful and low successful students. The SPSS version 17 was used to analyze the collected data. To provide answers to our five research questions, Pearson Product Moment Correlation Coefficient was used to determine the correlation coefficient among FLA and SE, ASE, and PSS. Regression analysis was conducted to find out which of the three subcomponents of SE is significant and strongest predictor of FLA and also, Independent Sample t-test was utilized in order to find out if there is any difference between high successful ELT prospective teachers and low unsuccessful ones in relation to their SE, ASE and PSS.

The findings of this research revealed that there was a significant correlation between FLA and these three independent variables for prospective ELT teachers. Findings showed that gender was not a predictor for SE, ASE and PSS. Finally, no significant difference was found between high successful and low successful students in relation to their SE, ASE and PSS.

### **Key Words**

Self-Efficacy, Academic Self-Efficacy, Problem Solving Skills, Social Cognitive Theory, Social Behavior, Self-Esteem, Self-Confidence, Foreign Language Achievement, Motivation, Reciprocal Determinism, and Academic Motivation.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1. INTRODUCTION**

This chapter, first, provides background information. Second, it states the problem and purpose of the study. Third, it indicates why the study is significant and what its research questions and limitations are. Forth, it describes how the thesis is organized. Finally, it defines the key terms.

#### **1.2. BACKGROUND TO THE STUDY**

##### **SELF-EFFICACY**

Bandura (1989) asserts that people are the product of environment and environment is the product of people. They are both under the influence of each other and be able to change each other. Schunk and Pajares (2002) believe that Early Social Cognitive Theory put more responsibility for the development of a person on her or his environment. Bandura and a colleague created Social Learning Theory. The theory of social cognition attempted to explain how students learn and develop. Schunk and Pajares reported that in 1979 Bandura found the missing part from developmental theories of the past that was a student's belief in his or her ability to accomplish tasks and develop competencies and the bottom line for this development came to the concept of personal self-efficacy. Additionally, recent studies have shown that there is an intensive link between self-efficacy and outcomes when the specificity of the efficacy assessment matches the criterion (Choi, 2005; Pajares & Miller, 1995). Because of that, self-efficacy has been accomplished and studied within a variety of domains—academic, social, career, clinical, athletics, and health (Bandura, 1997).

The process of education is one of the most important and complex of all human endeavors. In recent years, the problems faced in English Language Teaching (ELT) have become increasingly complicated and unfortunately the ability and skills needed to solve these problems are not often taught in the usual teacher-centered approaches. The

ability to solve well-structured problems to some extent increases the relevant and critical thinking skills, which are very important for students to solve problems they may face in their future professional and personal lives. Recent approaches in education aim at cognitive processes, defined in terms of learner autonomy principles. Taylor (2001) described the aim of critical thinking skills in teaching the learner how to think rather than what to think and Collier et al (2002) explained the essential factors of critical thinking skills for successful academic and social lives as judging, reasoning, problem solving, decision making.

It is well documented that language learning is influenced by the affective side of the learner. Self-efficacy is the affective factors influencing language learning which describes how learners' belief influences the ways in which students approach the learning task. Self-efficacy beliefs have been defined as: "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura and Schunk, 1981, p. 31). Bandura (1984) suggests that students' judgments of their capability to perform academic tasks, that is, their self-efficacy beliefs, predict their capability to accomplish such tasks. Further, it is suggested that these judgments of self-efficacy mediate the effect of other influences, such as aptitude or previous achievement on subsequent performance. Ching (2002), as cited in Magogwe and Oliver (2006), believe that "it has been observed that highly efficacious students are confident about what they can achieve; set themselves challenges and are committed to achieving them; work harder to avoid failure; are highly resilient and link failure with insufficient effort or deficient knowledge and skills which they believe they are capable of acquiring" (p.341).

Previous foreign language learning (FLL) and second language acquisition (SLA) investigations have found a strong link between increase success of strategy use and higher self-efficacy beliefs, with success being measured using proficiency and/or grades (e.g., Ehrman and Oxford, 1990; Green and Oxford, 1995; Rubin, 1975). This suggests that there may be a connection between increased strategy use and higher self-efficacy beliefs. Investigations into self-efficacy and general learning strategies provide support for this hypothesis. Pajares and Schunk (2001) found that students who believed

they were capable of performing tasks (self-efficacy) used more cognitive and metacognitive strategies and persisted longer than those who did not.

Similarly, other research findings suggest that self-efficacy beliefs are related to self-regulated learning variables and use of learning strategies (Feather, 1988; Fincham and Cain, 1986; Pape and Wang, 2003). The general self-efficacy belief literature indicates that self-efficacy beliefs are related not only to academic achievement but also to age and or level of education (Pajares and Schunk, 2001). Ehrman, Leaver, and Oxford (2003) suggested that intrinsically motivated learners find reward in the enjoyment of learning activity itself and achieve a feeling of competence in doing a task, which Bandura (1997) called it as self-efficacy.

### **ACADEMIC SELF-EFFICACY**

Schunk (1991) believes that academic self-efficacy refers to one's perceived capability to perform given academic tasks at a desired level. In previous studies, academic self-efficacy has been used in various ways. Some of the scholars like Schunk (1981) measured academic self-efficacy at a task specific level (e.g., self-efficacy for addition or subtraction), others such as Hackett and Betz (1989) at domain-specific level (e.g., mathematics self-efficacy, or at a more general academic level (expectancies for academic success: Meece et al. 1990; Schunk 1995; Malpass et al. 1999). In this case Finney and Schraw (2003) also believe that academic self-efficacy should be measured at a task-specific level. This view is supported by studies of Pajares (1997) which demonstrate that self-efficacy measured at task-specific level has a stronger predictive validity, especially for academic achievement, as compared to more general measures. Other authors like Bong and Skaalvik (2003) and Choi (2005) asserted that a decision regarding the level of specificity at which academic self-efficacy should be measured, is best dictated by the research question and the nature of the variables to which academic self-efficacy will be related.

According to previous studies of Bandura and Schunk (1981), students with a strong sense of academic self-efficacy undertake more challenging tasks. Therefore, they expend greater effort accomplishing a given task (Pajares and Graham, 1999). In

addition, Lent et al. (1986) believe that students persist longer in the face of difficulties, and according to Pintrich and De Groot (1990) learners engage in more effective self-regulatory strategies, process the learning material more deeply (Zimmerman and Martinez-Pons, 1990), have higher academic aspirations (Zimmerman et al. 1992), are more mastery goal oriented (Skaalvik and Skaalvik 2005), and report lower levels of anxiety than students with little confidence in their academic abilities (Pajares and Miller, 1994). As a result, academic self-efficacy is a strong predictor of academic performance, even when the possible effects of prior knowledge and general cognitive skills are controlled for (Pintrich and Schunk, 1996).

Research on considering self-beliefs in a more task-specific way and focusing especially on self-efficacy beliefs began in the late 1970s. Bandura (1977) offered the theory of origins, mediating mechanisms, and various effects of beliefs of personal efficacy and provided strategy for measurement of self-efficacy beliefs in different domains of functioning.

## **PROBLEM SOLVING SKILLS**

Today problem solving skills is often the collaborative activity of a multi-disciplinary team. Students should have skills to interact with others who may have different abilities. Learners taught in a teacher-centered learning approach are not adequately prepared when they encounter real-world problems (Pross, 99). Mayo et al (1993) is also asserted that in “problem solving”, students begin with an unsure reason about how to proceed and what new knowledge they need for a solution. Students work backwards by starting with a reasonable solution and then search for the necessary knowledge to support, change, and apply it. There is no correct answer, but are better and worse solutions. Solving problems is more difficult. The good news is that students have been doing it for years. Students’ first task is to think about how they go about solving problems.

Problem solving skills is also teaching students how to cooperate with the other students. As Wood, F. (2003) asserts that “group learning facilitates not only the acquisition of knowledge but also several other desirable attributes, such as

communication skills, teamwork, problem solving, independent responsibility for learning, sharing information, and respect for others” (p.328).

During the past two decades, self-efficacy has come in as a highly effective predictor of students’ motivation and learning. One of the most important outcomes of problem solving skills is self-efficacy belief. Zimmerman (2000) in academic press stated that self-efficacy beliefs have been found to be sensitive to delicate changes in students’ performance context, to interact with self-regulated learning processes, and to mediate students’ academic achievement.

### **1.3. STATEMENT OF THE PROBLEM**

Although a number of studies in different fields suggest that *Self-Efficacy*, *Academic Self-Efficacy* and *Problem Solving Skills* play vital roles in life, social interaction, education and nearly everybody accepts its usefulness in teaching and creating positive attitudes towards a certain goal in any discipline of education, there has not been sufficient attention on the use of these skills. Therefore, it is better to take these skills into account in foreign language classrooms. Since learning is important in the existence of almost any society, many people feel that it should be handled only in a serious manner. The traditional system and teacher centre classes were believed to be apparently inadequate for prospective ELT teachers. Therefore, most of the teachers hesitate on using them.

In the traditional system of education, learners are passive, and individual in collecting knowledge, and it is better to mention that social interaction and learner cooperation are ignored. However, problem solving skills incorporate collaborative teams in the solving of relevant problems. This method plays a very important role in promoting student interaction and teamwork, thereby enhancing students' interpersonal skills, and gaining feeling of satisfactory and self-efficacy beliefs of their abilities and thus, it creates high motivation of learning and helps them to become academically successful. Social interactions occur not only in classrooms, but also beyond the boundary of classrooms, such as at home, in laboratories, on the market and even on the road.

#### **1.4. PURPOSE OF THE STUDY**

The purpose of this study is to identify the relationship between *Self-Efficacy*, *Academic Self-Efficacy*, *Problem Solving Skills* and foreign language achievement of prospective ELT teachers. As it was stated earlier, utilizing these methods of learning is more effective than the traditional and conventional methods of language teaching and learning in relation to the outcomes of learning process and their abilities in using their skills to solve the problems they encounter during learning process.

Overall, this study aims to identify if these methods can be a very useful pedagogical approach, with many beneficial effects for these students. As already outlined, one of its additional benefits is that they are interdisciplinary methods of learning. As a result, the deviation from the more traditional system of learning and the departure from the traditional didactic mentalities that problem solving skills provide in all fields make individuals become better practitioners of their professions.

The goals of self-efficacy and problem solving skills are both knowledge-based and process-based. Students need to be assessed on both aspects at regular meantime to be ensured that they are benefiting as intended. Students are responsible for the content in the curriculum that they have “covered” through involvement with problems. They need to be able to recognize and articulate what they know and what they have learned.

#### **1.5. SIGNIFICANCE OF THE STUDY**

Every ELT faculties are faced with determining how to instruct useful and perfect curriculum and how to present course materials in order to help students not only gain knowledge of the discipline, but also become self-directed learners who develop self-efficacy belief and problem-solving skills so as to be able to apply in future courses and in their careers especially in academic life.

As traditional knowledge-based assessments of curriculum outcomes indicate, little or no difference has been observed between students graduating from student center and those from traditional curricula. Surprising as it may seem, students from student center

curricula have better knowledge retention than the students from traditional ones (Wood, 2003). Self-efficacy belief and problem solving skills also generate a more stimulating and challenging educational environment, and the beneficial effects from the generic attributes acquired through these methods should not be underestimated.

Seltzers et al., (1996) in their studies claim that “Students develop a deeper awareness and possession of important concepts in the course by working on activities, a basic principle of the constructive approach to learning” (p.86). In addition, in order to pay more attention to learning by doing these methods, instructors or teachers should make students be meta-cognitively aware (Gijsselaers, 1996). That is, students must learn to be conscious of what information they already know about the problem, what information they need to know to solve the problem and the strategies to use to solve the problem. Having abilities to communicate such thoughts helps students become more effective problem-solvers and self-directed learners. All of the facts mentioned before actually will be the cause of self-efficacy belief and higher motivation in learning in students and, therefore, make them academically successful.

Despite the various studies on self-efficacy, academic self-efficacy and problem solving skills in relation to foreign language achievement, there is still a gap in descriptive or empirical research and literature surrounding prospective ELT teachers. Furthermore, there is a lack of empirical exploration into the possibility of relationships among self-efficacy and other domains of self-efficacy. Therefore, this descriptive and exploratory study sought to add to the growing body of empirical research concerning Faculty of Education, the Department of Foreign Languages Education, and the Division of ELT at Hacettepe University in Turkey.

## **1.6. RESEARCH QUESTIONS**

This study investigates the relationship among self-efficacy, academic self-efficacy and problem solving skills and foreign language achievement. To do so the following research questions have been formulated:



1. Is there any relationship between self-efficacy and its subscales (Course-Efficacy, Social-Efficacy and Roommate-Efficacy) and foreign language achievement?
2. Does academic self-efficacy have any significant role in foreign language achievement?
3. How do problem solving and its components (Problem Solving Confidence, Approach-Avoidance Style and Personal Control) affect foreign language achievement?
4. Is Gender a predictor in developing self-efficacy, academic self-efficacy and problem solving skills?
5. Do high successful ELT prospective teachers differ from unsuccessful ones in terms of a) SE, b) ASE, and c) PSS?

### **1.7. LIMITATIONS OF THE STUDY**

The first and important limitation of the present study is, it will be carried out only at Hacettepe University, Faculty of Education, the Department of Foreign Languages Education, and the Division of ELT in Turkey. Therefore, this descriptive study is not intended to generalize the findings to students in other countries and cultures as well. The subjects of this study (N=100) 24 males and 70 females were chosen from the total population of freshman student in the ELT Division at the above mentioned university during the 2011-2012 academic year.

A lack of well-designed studies posed a face to this research analysis, and an article on the same topic by Sanson-Fisher and Lynagh (2005) indicated that “Available evidence, although methodologically flawed, offers little support for the superiority of student center over traditional curricula” (p. 260). This gap in the research in the short-term and long-term effectiveness of using these methodologies with a range of learner populations definitely indicates a need for further studies.

The second limitation related to validity problems associated with surveys. The validity of survey research can be seriously affected by students' functions. It has been discussed in many studies that researchers use self-efficacy questionnaires rather than interviewing with students in order to get more deep insight to spot fact. Even some of the researchers believe that students just in order to show the good social picture of themselves answer selectively. Hancock and Flowers (2001) and Rosenfeld et. al., (1996) asserted that however, the validity of the result depends on student's honesty, student's answers mostly desire to provide socially acceptance therefore they tend to give a good picture of themselves through their responses.

The research design is the third limitation for this study. Measuring students' self-efficacy, academic self-efficacy and problem solving skills according to their GPA only once and relatively early on during freshman year provides little insight into the stability and the manipulability of perceived academic achievement. It is quite possible that judgments of self-perceived competence strongly evolve during freshman year; especially since freshmen have to adapt to a new learning environment in which they are expected to process much more learning material and to study more independently than they are used to in secondary education.

### **1.8. DEFINITIONS OF THE KEY TERMS**

In this section the key terms of the study are defined to avoid confusion or misunderstandings and to create a common background for the studies reviewed here, i.e., *Self-Efficacy*, *Academic Self-Efficacy*, *Problem solving skills*, *Social Cognitive Theory*, *Social Behavior*, *Emotional Behavior*, *Self-Esteem*, *Self-Confidence*, *Foreign Language Achievement (FLA)*, *Motivation*, *Reciprocal determinism* and *Academic Motivation*.

**Self-efficacy:** According to Bandura (1986), "Self-efficacy is the belief in one's capabilities to organize and execute the sources of action required to manage prospective situations" (p. 36). He also defined Self-Efficacy as a person's belief in his or her capability to successfully perform a particular task. Together with the goals that people set, self-efficacy is one of the most powerful motivational predictors of how well

a person will perform at almost any endeavour. A person's self-efficacy is a strong determinant of their effort, perseverance, planning, as well as their subsequent training and job performance. Besides "being highly predictive, self-efficacy can also be developed in order to achieve its performance enhancing benefits" (Heslin and Klehe, 2006; pp. 705-708).

**Academic self-efficacy:** According to Chemers, Hu, and Garcia (2001) as cited by Ayiku (2005, p. 11), academic self-efficacy is the ability and confidence of a student to master academic subjects and to "...make greater use of effective cognitive strategies in learning, manage their time and learning environments more effectively and...monitor and regulate their own effort" (p. 55). As with most forms of self-efficacy, academic success improves academic self efficacy, and failures decrease positive feelings of academic self-efficacy (Chemers, Hu, & Garcia).

**Problem Solving Skills:** Hung, Jonassen, and Liu (2006) defined problem solving skills as "A process of understanding the discrepancy between current and goal states of a problem, generating and testing hypotheses for the causes of the problem, devising solutions to the problem, and executing the solution to satisfy the goal state of the problem" (p.486).

**Social Cognitive Theory:** "Social cognitive theory defines learning as an internal mental process that may or may not be reflected in immediate behavioral change" (Bandura, 1986; p. 2).

**Social Behavior:** It describes the general behavior demonstrated by individuals within a society that is essentially in reaction to what is considered acceptable by a person's peer group or avoiding behavior that is characterized as unacceptable. In addition, social behavior primarily establishes how individuals interact with one another within a group or society.

**Emotional Behavior:** It refers to a mental state that arises spontaneously rather than through conscious effort and is often accompanied by physiological changes. It is also defined as a state of mental agitation or disturbance and the part of consciousness that

involves feeling and sensibility (retrieved from 20.02.2013 <http://www.thefreedictionary.com/emotion>).

**Self-Esteem:** “a person judgment of their own worth or value, based on a feeling of “self-efficacy”, a sense of interacting effectively with one’s own environment. Efficacy implies that some degree of control exists within oneself. Self-esteem is an effective variable in language learning and low self-esteem may negatively influence second language learning” (Longman Dictionary of Language Teaching and Applied Linguistics, 2002).

**Self-Confidence:** Self-confidence is an attitude which allows individuals to have positive yet realistic views of themselves and their situations. Self-confident people trust their own abilities, have a general sense of control in their lives, and believe that, within reason, they will be able to do what they wish, plan, and expect (<http://ucsc cares.ucsc.edu/self-help/self-esteem.html>).

**Foreign Language Achievement (FLA):** FLA refers to the extent to which an individual has been able to learn and internalize a particular language. In other words, it has to do with the degree to which a person has successfully learned a particular language and has gained proficiency in all four skills with specific reference to ultimate attainment at the end of a particular course or program of instruction. (Longman Dictionary of Language Teaching and Applied Linguistics, 2002).

**Motivation:** Motivation refers to “the reasons underlying behavior” (Guay et al., 2010, p. 712). For Ryan and Deci (2000) motivation is concerning energy, direction, persistence and equifinality all aspects of activation and intention. They believe that the term “motivation” refers to the reason for someone to take action. The reason may be intrinsic or extrinsic. Individuals are generally motivated intrinsically, when individuals do something that they enjoy. A person, who enjoys reading biographies, for example, may read of their own volition. Extrinsic motivation occurs, when an individual takes action to satisfy an external influence. A student may read a novel to satisfy the requirements of a course, for example, but not actually enjoy reading the novel.

**Reciprocal determinism:** is the theory set forth by psychologist Albert Bandura (1986) that “a person's behavior both influences and is influenced by personal factors and the social environment. Bandura accepts the possibility of an individual's behavior being conditioned through the use of consequences. At the same time he asserts that a person's behavior (and personal factors, such as cognitive skills or attitudes) can impact the environment. These skill sets result in an under- or over-compensated ego that, for all creative purposes are too strong or too weak to focus on pure outcome” (p. 2-3).

**Academic Motivation:** Gottfried (1990) defines academic motivation as “enjoyment of school learning characterized by a mastery orientation; curiosity; persistence; task-endogeny; and the learning of challenging, difficult, and novel tasks” (p. 525).

## **1.9. CONCLUSION**

This chapter served as an orientation to the study the relationship among self-efficacy, academic self-efficacy and problem solving skills in foreign language achievement. Noting the gap in relevant literature, studying on prospective ELT teachers, this chapter raised salient issues important to prospective ELT teachers, to their self-efficacy, academic self-efficacy, problem solving skills and foreign language achievement. The next chapter will review relevant studies in order to ground the study in applicable descriptive research.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

#### **2.1. INTRODUCTION**

This first part, the literature review, consists of Self-Efficacy, definition of Self-Efficacy; an analysis of self-efficacy theory, self-efficacy and its dimensions, role of self-efficacy in academic motivation, its applications in some areas of human action, self-efficacy and learning, factors affecting self-efficacy, self-efficacy and second language learning, academic self-efficacy and at the end problem solving skills will be explained.

#### **2.2. SELF-EFFICACY**

The construct of self-efficacy was introduced by Bandura (1977) with the publication of the article *Self-efficacy: Toward a unifying theory of behavioral change*, and the book *Social Learning Theory*. Social learning theory views human action or behavior as being determined by interplay of the situation, the person's behavior, his cognitions and emotions. One of Bandura's interests is concerned with ways in which individuals regulate their own motivation, thought patterns, affective states and behavior through beliefs of personal and collective efficacy. He stresses the effect of one's perceived abilities on one's behavior.

Bandura (1997) defines self-efficacy as referring to self-perceptions or beliefs of capability to learn or perform tasks at designated levels. The other authors have attempted to define self-efficacy, but they all paraphrase to refer to Bandura's definition. McCombs (2001) cites Bandura (1991), explaining self-efficacy judgments in reference to the learner's judgment of his or her competency for successful task completion. Schunk (2001) acknowledged that self-efficacy is a construct in Bandura's theory of human functioning and defined it as "beliefs about one's capabilities to learn or perform behaviors at designated levels" (p. 126).

Pintrich and Schunk (1996) quote another of Bandura's (1986) definitions that self-efficacy refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 88). Huang and Shanmao (1996) define self-efficacy expectations as "the beliefs about one's ability to perform a given task or behavior successfully" (p. 3).

### **2.2.1. Self-Efficacy Theory**

Social learning theory and the idea in which child can learn through observation made Bandura well known. After years, Bandura developed his theory by adding elements such as motivation and self-regulation and in the bottom line changing its name to *Social Cognitive Theory*. For Bandura, Barbaranelli, Caprara and Pastorelli (1996), self-efficacy theory is one aspect of social cognitive theory. The latter is an approach to understanding human cognition, action, motivation, and emotion.

In 1986, Bandura added the self-efficacy component to his theory, which holds that people possess a "self system" that enables them to exercise control over their thoughts, feelings, and actions. This self system consisted of cognitive and affective elements including the ability to represent, learn from others, create options, adjust one's own behavior, and engage in self-reflection.

Efficacy is not a steady standard ability that individuals have or do not have in their lists of behaviors; rather, it is "a generative capability in which cognitive, social, emotional and behavioral sub skills must be organized and effectively oriented to serve innumerable purposes" (Bandura, 1997, p. 36-37).

According to Bandura (1995), "People differ in the areas of life in which they cultivate their sense of efficacy....Teachers must have some knowledge of students' perceived strengths and weaknesses not simply in general learning, but in very specific learning tasks. The efficacy-belief system is not a global trait, but a differentiated set of self-beliefs linked to distinct realms of functioning" (p.1). Maehr and Pintrich (1997) believed that self-efficacy judgments are both task and situation specific; students use their judgments about their abilities in reference to a specific task or goal. Thus,

according to Bruning, Schraw and Ronning (1999) having high self-efficacy in a specific area or domain does not imply that a person will have high self-efficacy in a different domain, as cited by Schulze and John M. Schulze (2003, p. 106).

There are some constructs that have unclear boundaries with self-efficacy. One such construct is self-esteem. Maddux (1995) stated self-esteem as a personal trait while the self-efficacy is not. This is the distinction between self-esteem and self-efficacy. One of the applications of Self-efficacy is the possibility of applying to specific fields or even subfields of human behavior. For example, a person can have low self-esteem, but have high levels of self-efficacy in a field such as drawing, sports, or learning languages. He or she can also have high self-esteem and feel inefficacious in math and science. Epstein and Morling (1995) believed that the main difference between self-efficacy and self-esteem is that the former is the assessment of capability and the latter is the assessment of self-worth. What a person thinks he is capable of accomplishing is different from what he thinks he is worth. Bandura (1997) wrote that “individuals may judge themselves hopelessly inefficacious in a given activity without suffering any loss of self-esteem whatsoever, because they do not invest their self-worth in that activity” (p. 11).

Another construct which put self-efficacy in unclear boundaries is confidence. Bandura (1997, p. 382) explains that confidence is “a nondescript term that refers to strength of belief but does not necessarily specify what the certainty is about.” A person can be confident that he will fail or succeed in science. Self-efficacy is the belief in one’s power to achieve certain levels of performance. Confidence does not involve the person’s power or ability to perform at a certain level.

Mastery experience, vicarious experience, verbal persuasion, and physiological state are the major components of the self-efficacy (Alderman, 1999; Bandura, 1986; Dweck and Leggett, 1988; Maehr and Pintrich, 1997), as cited by Schulze and John M. Schulze (2003, p. 106). The most influential is mastery experience which refers to the student’s subjective evaluation of his or her past experience with regard to a particular task or skill.



The second type of experience affecting self-efficacy beliefs is vicarious experience, or it's known the observing of others performing a task. According to Bandura (1986) "...observing that others perceived to be similarly competent fail despite high effort lowers observers' judgments of their own capabilities and undermines their efforts" (p.99). Although, the effect of this type of experience is not as strong as the mastery experience, it can be a useful educational tool.

Verbal persuasions or verbal judgments are comments by significant others that develop beliefs in self-efficacy (Bandura, 1986; Alderman, 1999). Bandura believed that verbal persuasion "can contribute to successful performance if the heightened appraisal is within realistic bounds" (p. 400). According to Bandura (1994) "Seeing people similar to oneself succeed by sustained effort raises observers' beliefs that they too possess the capabilities master comparable activities to succeed". Alderman, (1999) stated that negative comments are more effective in lowering self-efficacy than positive comments are in increasing self-efficacy. It is said that, positive feedback is a stimulus the learner's curiosity and creativity of students to accomplish the task.

One of the important factors which play a significant role in self-efficacy is our own responses and emotional reactions to situations. "Moods, emotional states, physical reactions, and stress levels can all impact how a person feels about their personal abilities in a particular situation". A learner's physiological state can also affect self-efficacy; for example, anxiety, fear, fatigue, or pain can all affect self-efficacy beliefs (Bandura, 1997). Anxiety in particular can interfere with self efficacy, ultimately interfering with a student's performance. (Retrieved from [http://psychology.about.com/od/theoriesofpersonality/a/self\\_efficacy.htm](http://psychology.about.com/od/theoriesofpersonality/a/self_efficacy.htm))

A person who becomes extremely nervous before speaking in public may develop a weak sense of self-efficacy in these situations. However, Bandura also notes "it is not the sheer intensity of emotional and physical reactions that is important but rather how they are perceived and interpreted" (1994). By learning how to minimize stress and elevate mood when facing difficulties or challenging tasks, people can improve their sense of self-efficacy. (Retrieved from [http://psychology.about.com/od/theoriesofpersonality/a/self\\_efficacy.htm](http://psychology.about.com/od/theoriesofpersonality/a/self_efficacy.htm)).

### 2.2.2. Self-Efficacy and its Dimensions

“Before Bandura (1977) introduced self-efficacy as a key component in social cognitive theory, he discussed human motivation primarily in terms of outcome expectations. However, during the treatment of phobic individuals with mastery modeling techniques, individual differences in generalization were found regardless of the fact that all subjects could successfully interact with the target of their fear without adverse consequences at the end of therapy” (Zimmerman 2000, p. 83).

In spite of the fact that, self-efficacy and outcome expectations were both hypothesized to affect motivation, Bandura (1986) proposed that self-efficacy would play a significant role because “the types of outcomes people anticipate depend largely on their judgments of how well they will be able to perform in given situations” (p. 392). Self-efficacy expectancies vary along three dimensions: magnitude, or level (Bandura, 1997) generality, and strength.

Magnitude or level of self-efficacy is defined as the number of steps of increasing difficulty that an individual feels he/she is capable of doing task. Bandura (1997) explains that the perceived personal efficacy may consist of accomplishing simple tasks, develop to moderately difficult tasks, or include totally hard tasks. The perceived capability for a given person is measured against levels or magnitudes of task demands that represent different degrees of challenge or obstacles to successful performance.

Generality of self-efficacy deals with the degree to which success or failure in handling tasks affect self-efficacy hope in like situations or contexts. People have self-efficacy beliefs in different domains, and “within the network of efficacy beliefs, some are of greater importance than others. The most fundamental self-beliefs are those around which people structure their lives” (Bandura, 1997, p.43).

Again Bandura (2001) defines *generality* include to the diversity of activities or areas over which people find themselves efficacious: “Generality can vary across types of activities, the modalities in which capabilities are expressed (behavioral, cognitive, and

affective), situational variations, and the types of individuals toward whom the behavior is directed” (p. 5).

Strength of self-efficacy refers to “the resoluteness of a people’s convictions that they can perform the behavior in question” (Maddux, 1995, p. 9). Strength of efficacy beliefs is related to endurance or persistence in the face of hardships, challenges, frustrations, pain, and other barriers to performance. In this case Bandura, (1997) believed that strength of perceived efficacy is measured by the amount of individual’s assuring about doing a given task.

### **2.2.3. Applications of Self-Efficacy**

Many fields of human action, especially those that require a certain amount of personal control and mastery, self-efficacy play a key role. Maddux and Meier (1995) asserted that low self-efficacy expectancies are an important feature of depression, anxiety and specific fears. It is believed that self-regulation as the most important cognitive capacity in human adaptation has intensive use in various treatments or counseling programs (ibid). Individuals who feel efficacious in a domain are capable of setting challenging goals, planning, and self-regulating in the pursuit of those goals.

Human functioning is influenced in several ways by human actions namely, perceived self-efficacy, or one’s beliefs in one’s capabilities according to the Self-efficacy theory (Bandura, 1997). They visualize successful results and do not dwell on personal deficiencies or on what might go wrong. At the cognitive level, people with high self-efficacy have high aspirations, set challenging goals for themselves, and commit themselves to achieving them.

Bandura (1997, p. 1) asserted that “Self-efficacy beliefs determine the goals people set for themselves, how much effort they expend, how long they persevere, and how resilient they are in the face of failures and setbacks”. At the affective level, self-efficacy beliefs adjust emotional states. Those who have high self-efficacy know they can manage difficulties when they are encounter with them, whereas people who lack self-efficacy are likely to magnify risks or threats.

Another domain in which self-efficacy beliefs play an important role is thought control. Bandura (1997) explains that the role of self-efficacy in thought control settles performance. People in order to successfully complete any difficult skill and situations must eliminate all distractions and negative thinking, and try to completely concentrate and motivate on the activity that they are working on it. Individuals with low self-efficacy may doubt themselves at this stage and perform poorly.

Moreover the effect of self-efficacy theory in the field of health sciences which are needed to treat patients who suffer from medical conditions is also important in applied to change in the patients' behavior to be cured. Successful and permanent change of behavior requires a lot of effort and determination, which in turn are enhanced by strong self-efficacy beliefs and self-regulation.

According to foregoing facts about the advantages of self-efficacy in a variety of disciplines Mosier (1997) also proposed some essential factors for improving patients' self-efficacy, these suggestions can be useful not only in health, but also in education:

- (1) breaking complex tasks into smaller manageable components,
- (2) arranging tasks into an ascending series with easier tasks first,
- (3) providing continuous encouragement,
- (4) crediting success to the subjects' own work and ability,
- (5) charting progress over the course of the change process,
- (6) treating lapses as opportunities to look at the reasons for the lapses, and
- (7) providing experience through modeling (as cited by Gahungu, 2007).

Pajares and Miller (1994) conducted a research on Role of Self-Efficacy and Self-Concept Beliefs in Mathematical Problem Solving: A Path Analysis. They in order to test the predictive and mediational role of self-efficacy beliefs in mathematical problem

solving used Path analysis. Their findings revealed that “math self-efficacy was more predictive of problem solving than was math self-concept, perceived usefulness of mathematics, prior experience with mathematics, or gender. Self-efficacy also mediated the effect of gender and prior experience on self-concept, perceived usefulness, and problem solving. Gender and prior experience influenced self-concept, perceived usefulness, and problem solving largely through the mediational role of self-efficacy. Men had higher performance, self-efficacy, and self-concept and lower anxiety, but these differences were due largely to the influence of self-efficacy, for gender had a direct effect only on self-efficacy and a prior experience variable” (p.1). Their results support the hypothesized role of self-efficacy in A. Bandura's (1986) social cognitive theory.

Tierney and Farmer (2002) studied creative self-efficacy: its potential antecedents and relationship to creative performance. They gathered data from two different firms. Their study tested a new construct, creative self-efficacy, tapping employees' beliefs that they can be creative in their work roles. Their finding supported the discriminant validity of the construct and indicated that job tenure, job self-efficacy, supervisor behavior, and job complexity contribute to creative efficacy beliefs. Creative self-efficacy also predicted creative performance beyond the predictive effects of job self-efficacy.

#### **2.2.4. Self-Efficacy and Learning**

The importance of Bandura's self-efficacy concept for education is clear. The judgments a person may make about his or her abilities can lead a person to decide which activities to try or not to try, how much effort to give, or how persistent he or she will be when challenged. Student with high self-efficacy tries to set higher purposes, tries hard to achieve his / her purpose, improves his/her current level of efficacy as he/she makes progress, uses critical thinking skills and strategies, decision making, and does not give up easily (Bandura and Schunk, 1981; Bouffard-Bouchard, 1990; Lent, Brown and Larkin, 1984; Pajares, 1996; Schunk and Hanson, 1985). Thus, the highly efficacious student is more likely to succeed.

Recent studies have shown great interest in the implication of self-efficacy in educational domain (Pintrich and Schunk, 1996). The importance of having high level of self-efficacy when encountered with the new and challenging skills has been confirmed by the findings of the research on self-efficacy (Bandura, 1995; Bandura and Schunk, 1981; Schunk and Hanson, 1985). For example, Bouffard- Bouchard, Parent, and Larivee (1991) found that students with high self-efficacy engaged in more effective self-regulatory strategies.

Schulze and Schulze (2003) researched on *Believing is Achieving*: They investigated the implications of self-efficacy research for family and consumer sciences education. The research findings supported Pajares (1996) that the effects of feelings of self-efficacy confirm the notion that high self-efficacy increase student learning. Students who have a higher level of self-efficacy should be better able to learn new skills and concepts needed to succeed. Students must have the confidence necessary to cope and problem solve in the classroom and in all other aspects of life. Factors such as goal-setting, feedback, modeling, rewards, and self-efficacy assessments, family and consumer sciences can enable students to become lifelong learners and prepare them for the future professional life. With regards to self-efficacy influencing students' learning, self-efficacy also affects motivation as it has been proved by a well documented research (Pajares, 1996; Schunk, 2003).

Rimm-Kaufman and Sawyer (2004) examined the ways in which experience with a relational approach to education, the Responsive Classroom (RC) Approach, related to teachers' beliefs, attitudes, and teaching priorities. They found that "teachers who reported using more RC practices reported greater self-efficacy beliefs and teaching practice priorities that were consistent with those of the RC approach", as cited by Karimi (2011, p. 53).

Cheung and Lee (2007) sought to explain members' intention to continue sharing knowledge in a virtual community in terms of knowledge self-efficacy and satisfaction. The research model was tested with the current users of a virtual professional community (Hong Kong Education City) and was accounted for 32% of the variance.

The findings of research reveal that both knowledge self-efficacy and satisfaction play an important role in explaining members' intention to continue sharing knowledge.

### **2.2.5. Factors Play a Vital Role in Self-Efficacy**

Many studies have been conducted to find the relationship between self-efficacy and academic performance in mathematics (Hackett and Betz, 1989), reading and writing tasks (Shell, Colvin and Bruning, 1995) and the use self-regulatory strategies (Bandura, 1989). Other examined self-efficacy in academic settings include evaluations of students' expected performance in a given subject (Meece, Wigfield, and Eccles, 1990) and whether students believe that they are good at a given academic subject (Marsh 1990).

If one accepts that students' self-efficacy is related to their academic performance, then the question remains: What educational practices enhance students' self-efficacy? Alderman (1999) considered some factors that forming students' self-efficacy towards learning. These factors are modeling, goal setting, information processing, encouragement and feedback and rewards, are known to affect self-efficacy and potentially increase it.

Modeling is the way in which a novice can learn how to master new skills. Modeling is effective and play vital role in increasing self-efficacy, according to Schunk (1989, 1991) because it can provide explicit information about how to acquire a skill and can raise the student's expectation that he can master the skill. Learners may acquire self-efficacy from observing peers. Similar peers offer a good basis for comparison and observing them successfully perform a task raises efficacy. On the other hand, watching a peer fail will lower it (Bandura et al, 1996). Observing peer models increases efficacy to a greater extent than teacher models or persuasion (Schunk, 1995).

According to Bandura (1997) self-modeling, which occurs when individuals watch replays of themselves performing tasks at their best, raises beliefs of personal efficacy and potentially improves performance. On the other hand, self-modeling of deficiencies has no gain for the individuals involved.

An important cognitive process which is affecting achievement outcomes is Goal setting. Schunk (1995) believed that students who have a goal may feel a sense of efficacy to attain that goal and work hard to achieve it. He also mentioned that the advantages of setting a goal depend on three factors:

- 1) the proximity of the goal,
- 2) its specificity, and
- 3) its difficulty.

Information processing: According to Schunk (1995) learners with great difficulty in understanding the academic materials are likely to have low self-efficacy for learning that materials, whereas, those who feel capable of understanding the materials have a high sense of efficacy. Students with high self-efficacy beliefs work harder on tasks that they believe produce learning, and in so doing, they get information on how well they are doing. Knowing that they are processing the information very well enhances their self-efficacy and motivation.

Encouragement and feedback: In this case the role of teachers and parents to encouraging and persuading students are important, that they “can do it” or offer them positive feedback after performance of a task increase the students’ self-efficacy levels (Schunk, 1996). During feedback, linking success to the students’ efforts sustains motivation and increases self-efficacy. Teachers should always make an effort to give students clearly defined assignments and clearly articulated constructive feedback (Schraw, Dunkle and Bendixen, and Roedel, (1995). Schraw and Brooks (2001) believed that one of the most significant factors that an instructor can utilize is giving the student clear and constructive feedback.

Instructor may use reward to increase student’s self-efficacy and this method has been used. Alderman (1999) indicated that, as cited by Schulze and Schulze (2003, p. 109), “it should be cautioned, however, that this method of raising students’ self-efficacy is considered to be the least effective Allowing the students to take home something that



they have created to share with friends and family is a reward for the students and shows appreciation for their hard work. Rewards can also involve praise or enjoyable in-class assignments. Rewards are best used on a group basis, rather than on an individual basis. Rewarding students as a group will help to ensure a more cooperative atmosphere, which is essential if peers are to serve as effective models.”

### **2.2.6. Self-Efficacy and Second / Foreign Language Learning**

A few numbers of studies have been done regarding Self-efficacy theory applied in the field of second language acquisition, and foreign language learning. It was only recently in the late 1990's that a small number of studies were conducted. For example Huang and Shanmao (1996) studied four ESL students from a seventh-level reading and writing class in a university Intensive English Program. They pointed out that a significant relationship between the students' self-efficacy ratings and their scores on the reading and writing sections of their TOEFL.

Templin (1999) conducted a research on two groups of Japanese EFL students, low-efficacy and high-efficacy students. The result of the t-test showed a significant difference between the grades of the low-efficacy group and those of the high-efficacy group. Then Templin, Guile and Okuma (2001) conducted a research in order to find out the effect of self-efficacy course on raising the English ability of 293 Japanese college freshmen enrolled in English I course. They created and used an English test and a self efficacy questionnaire before and after students receiving self-efficacy instruction for a thorough semester. The results were “significantly higher than those on the self-efficacy pre-questionnaire. Therefore researchers concluded this difference was the result of the self-efficacy instruction” (as cited by Gahungu, 2007, p.89).

Anstrom (2000) conducted a research, in which she wanted to know whether is there any relationship between the use of language learning strategies and self-efficacy rating. Her subjects were 135 high school students enrolled in various foreign languages in Australia. The results obtained from the questionnaires revealed that there was a positive and significant correlation between strategy use and self-efficacy.

Another study conducted by Mahyuddin, Elias, Cheong, Muhamad, Noordin and Abdullah (2006) aimed to find out the relationship between students' self efficacy and their English language achievement in Malaysia. They found that 51 percent of students had high self efficacy while 48 percent showed low self efficacy. Correlational analysis showed positive correlations between several dimensions of self efficacy that is, academic achievement efficacy, other expectancy beliefs and self assertiveness with academic performance in English language. They conclude that “achievement in English language will improve when students have high self-efficacy in the language” (p. 61).

Wang, Chuang (2007) conducted a single case study and from the interpretive paradigm described a first-grade student's self-efficacy beliefs about learning English in various English language learning tasks and across school-based and home-based contexts. The student came from China and had been living in a Chinese community in the United States for one year when this study started. The investigator found learner's self-efficacy beliefs malleable and task-specific and higher self-efficacy to complete listening and speaking language activities than reading and writing activities. Finally, the investigator concluded that the learner's self-efficacy beliefs were associated with his familiarity with the content area, self-perceptions of English proficiency level, the task difficulty level, interests, attitude toward the English language and the English speaking community, and the social and cultural context.

Gahungu (2007) conducted a research study which is investigated in "The Relationships Among Strategy Use, Self-Efficacy, and Language Ability in Foreign Language Learners." The author found out that there was a positive and significant relationships among the three variables, also the majority of the participants did not have a clear rationale for studying French, but had undertaken its study to fulfill programmatic requirements, which affected their strategic behavior.

Magogwe and Oliver (2007) sought the relationship between preferred language strategies, age, proficiency, and self-efficacy beliefs. Their research was undertaken in Botswana between 2002 and 2005. They used adapted versions of the Oxford (Oxford, R., 1990). *Language learning strategies: what every teacher should know*. Newbury

House, New York] Strategies Inventory for Language Learning (strategies) and the Morgan-Jinks Student Efficacy Scale [Jinks, J.L., Morgan, V.L., 1999. Their results indicated that “Botswana students do use a number of language learning strategies, but that they show distinct preferences for particular types of strategies. Their findings also revealed a dynamic relationship between use of language learning strategies and proficiency, level of schooling and self-efficacy beliefs. They believe that because learning English is essential in their country therefore their results may be used in the future to inform pedagogy.

Yilmaz (2010) examined the relationship between language learning strategies, gender, proficiency and self-efficacy beliefs: a study of ELT learners in Turkey. The results showed that the highest rank (79.4%) was for *Compensation Strategies* while the lowest (63.8%) was for *Affective Strategies*. Also, findings pointed to significant differences for the strategies in favor of good learners. Research findings suggest that learners’ self-efficacy beliefs were strongly related to their use of all types of learning strategies (Yang, 1999; Pape and Wang, 2003, Fincham and Cain, 1986).

Due to the fact that, self-efficacy theory is not widely researched as it applies to second and foreign language learning, the few studies published and the results of them seem to agree that high self-efficacy corresponds to high achievement in foreign and second language learning. This statement implies that teaching self-efficacy can raise students’ achievement in EFL and ESL contexts.

### **2.3. ACADEMIC SELF-EFFICACY**

A student’s intellectual performance is based on the development of cognitive skill and his or her perceived self-efficacy which is caused to construct academic self-efficacy. Bandura (1977) defined academic self-efficacy as “personal judgments of one’s capabilities to organize and execute courses of action to attain designated types of educational performances” (p.203). Whorton (2009) also maintained “academic self-efficacy as the level of confidence a student possesses to successfully perform particular academic tasks” (p.12). Additionally Lent, Brown and Gore (1997) asserted that academic self-efficacy and academic self-concept are not equal concepts, academic self-

concept is related, and can be highly correlated to self-efficacy. Bandura (1997) stressed that students' feeling of self-efficacy strongly affect academic achievement. Factors such as "level of cognitive ability, prior education preparation, attainment, gender, and attitudes towards academic activities", along with the level of perceived self-efficacy, influence academic achievement (p. 216). Setting short term, rather than long term goals, helps students to develop their academic self-efficacy faster. Students work more eagerly at performing tasks when the goals are short term, instead of establishing long term goals that allow students to postpone difficult tasks until a later time. Bandura (1997) believe that using benchmarking methods and incentives to encourage students to set short time goals will help them develop academic self-efficacy.

By developing students' cognitive complexity, they are expected to begin to think more creatively and abstractly. They are also expected to take an active part in their learning and pursue cognitive development via "self-regulated learning" (Bandura, 1997, p. 229). Zimmerman (1986, 1989) defines "in general, students can be described as self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 329). He also asserted that "social cognitive theorists assume that self-efficacy is a key variable affecting self-regulated learning (p.331).

"Self-regulated learning is the process by which students pursue education and topics that are of interest to them. In order to continue to build cognitive skills and academic self-efficacy, students must take what they have learned in one area and repeatedly attempt to apply learned skills in another area. Through a widening of experiences, collaboration and corroboration with knowledgeable individuals, student can transfer cognitive skills to other areas and situations and this may help to continue to build personal self-efficacy" (Ayiku 2005, p.21).

Chemers, Hu and Garcia (2001) and Lent, Brown, and Larkin (1984) reported that there is a positive relationship between higher level of self efficacy and increased academic achievement. Researchers found that "students with higher levels of academic self-efficacy achieved higher grades and persisted in their academic major longer than those with lower perceived academic self-efficacy" (Lent et al., 1984) as cited in olani (2009,

p.1058). Lent and colleagues' study also revealed that there is a relationship among academic self-efficacy and standardized tests and high school rankings; they also found a significant correlation among levels of academic self-concept, self-efficacy and achievement.

Mone, Baker, and Jeffries (1995) conducted a study of self-efficacy and academic performance. They found that academic self-efficacy was a statistically significant predictor of personal academic goal setting and academic performance. Chemers et al. (2001) also found a strong link between academic expectations and academic achievement. Mone et al. (1995) believe that a student's sense of ASE has no effects on increasing student's goal setting and academic achievement. This idea is also in divergence with researches have done before (Hersey & Blanchard, 1993) which called for increasing students' self-esteem in order to increase academic performance and improve personal goal setting.

Zimmerman, Bandura, and Martinez-Pons (1992) found that there is a strong relationship between students' current academic self-efficacy and future goal setting with regards to previous grade achievement, but only when parental expectation of academic achievement was high for their respective student. Ayiku (2005) asserted that "Parents' goals for their children's academic achievement tended to be higher than goals students set for themselves. Parental expectations were purported to influence the type of academic expectations the students set for themselves and these students relied on their academic self-efficacy and parental expectations in order to formulate and solidify goals for the future" (p. 23).

In the Zimmerman et al. (1992) study, for students, the role of personal goals in their academic achievement play an important role, those who created self-made goals which in turn improved their sense of academic achievement. Bandura, Barbaranelli, Caprara and Pastorelli (1996) Bandura, Barbaranelli, Caprara and Pastorelli (1996) pointed out the significant effects of parents in establishing student's sense of self-efficacy. They also stressed that students who have high self-efficacy parents that their parents instilled their own belief to them will have a tendency to gain a high academic self-efficacy as well as their parents.

Ayiku (2005) investigated on the relationships among college self-efficacy, academic self-efficacy and athletic self-efficacy for African American male football players. The study analysis showed “statistically significant relationships among all three instruments” (p. 57). Also, Ferla, Valcke and Schuyten (2010) focused on the development of a model describing the impact of four judgments of self-perceived academic competence on higher education students’ achievement goals, learning approach, and academic performance. They founded that “academic self-efficacy, self-efficacy for self regulated learning, academic self-concept, and perceived level of understanding are conceptually and empirically distinct self-appraisals of academic competence which have a different impact on student motivation, learning, and academic performance”, retrieved from <http://en.zl50.com/2011040258726593.html>.

Elias (2008) studied on the “Impact of Anti-Intellectualism Attitudes and Academic Self-Efficacy on Business Students’ Perceptions of Cheating.” The Elias’s study surveys 666 business students in three universities to examine potential determinants of cheating perceptions. Elias defines *Anti-intellectualism* as refers to “a student’s negative view of the value and importance of intellectual pursuits and critical thinking.” Academic self-efficacy for investigator refers to “a student’s belief in one’s ability to accomplish an academic task.” As hypothesized, students high in anti-intellectualism attitudes and those with low academic self-efficacy were least likely to perceive college cheating as unethical. The investigator revealed that “college cheating has been found as a predictor of workplace cheating, the results urge business instructors to reduce anti-intellectualism among students and to encourage them to put forth their best efforts and the results also serve employers by focusing attention on these two psychological variables during the hiring and promotion processes” (p. 199).

### **2.3.1. Role of Self-Efficacy in Academic Motivation**

For Zimmerman (2000), “self-efficacy beliefs have also shown convergent validity in influencing such key indices of academic motivation as choice of activities, level of effort, persistence, and emotional reactions.” He also cited from Bandura (1997) that “self-efficacious students participate more readily, work harder, persist longer, and have

fewer adverse emotional reactions when they encounter difficulties than do those who doubt their capabilities” (p.86).

In terms of choice of activities, Zimmerman (2000) stresses those students who are self-efficacious perform difficult and challenging tasks more than those who are not efficacious students. He also concluded from a study of Bandura and Schunk (1981) that “students’ mathematical self-efficacy beliefs were predictive of their choice of engaging in subtraction problems rather than in a different type of task: The higher the children’s sense of efficacy, the greater their choice of the arithmetic activity” (p. 86).

Zimmerman and Kitsantas (1997; 1999) also found “self-efficacy to be highly correlated with students’ rated intrinsic interest in a motoric learning task as well as in a writing revision task” (Zimmerman 2000). Furthermore, he adds from Hackett and Betz (1989) Lent, Brown and Larkin (1984) that “measures of self-efficacy correlate significantly with students’ choice of majors in college, success in course work, and perseverance” (p.86). “Self-efficacy beliefs are predictive of two measures of students’ effort: rate of performance and expenditure of energy” (Zimmerman 2000, p.86). He also example, Schunk and colleagues study that the level of student’s solution of mathematic problems is positively correlates with the learner’s perceived self-efficacy for learning (Schunk and Hanson, 1985; Schunk, Hanson and Cox, 1987). The result of Salomon (1984) study is also convergent with the findings of foregoing studies in which Salomon discovered a positive correlation between the student’s self-rate mental effort and their achievements during learning with self-efficacy.

Bandura, (1997) indicated that factors such as stress, anxiety and frustration can be reduced under the effects of students efficacy which they need to manage academic tasks. For example, Pajares and Kranzler (1995) also, have studied the relationship between self-efficacy and students’ anxiety reactions regarding mathematics. They found self-efficacy and anxiety negatively correlated, and self-efficacy as predictor of mathematics performance.

It can be concluded from the findings of these studies that self-efficacy has a great impact on the learning outcomes and it helps to reduce the effects of other barriers of

learning. As Zimmerman (2000) suggests “particular benefit if educators focus on fostering a positive sense of personal efficacy rather than merely diminishing scholastic anxiety” (p. 87). Landry (2003) studied the contributions of students’ self-efficacy beliefs, efficacy outcome expectations, and motivation examined in relation to students’ intentions certainty about remaining in college. Major findings of the study showed that:

- “a) the measures developed specifically for the study are of reasonable quality,
- b) the hypothesized relationships between the independent variables and dependent variable were corroborated contrary to findings from prior research,
- c) there is little relationship between the presage variables and the psychological variables studied,
- d) positive outcome expectations and, to a lesser degree, students’ self-efficacy beliefs, make the strongest contribution to students’ intentions to remain enrolled in college and to persist in obtaining a college degree, and
- e) importantly, the psychological variables utilized in the study appear to be more powerful predictors of college student’s intentions to remain enrolled than previously studied demographic and presage variables” (p. 13).

### **2.3.2 Teacher’s Self-efficacy**

In the realm of education, many social factors such as environment effects, parental attitudes or encouragement, roommate or peers interactions and their modeling of cognitive skills, through short or long term goals have impact on the educator’s successes. In this category the effects of teachers’ self-efficacy in the learner’s successes should take into consideration too.

Bandura (1991) believe “the task of creating learning environments conducive to development of cognitive skills rests heavily on the talents and self-efficacy of teachers”



(p.140). Bandura (1994) also in his article explain School as an Agency for Cultivating Cognitive Self-Efficacy said as follow:

“Those who are having a high sense of efficacy about their teaching capabilities enable to motivate their students and enhance their cognitive development. Teachers operate collectively within an interactive social system rather than as isolates. He also believe that the belief systems of staffs create school cultures that can have vitalizing or demoralizing effects on how well schools function as a social system cause to achieve academic success convey a group sense of academic futility that can pervade the entire life of the school” (p.12).

Grudzinski (2009) describe the teacher’s self-efficacy as follow:

“As a teacher, I can see why it is important to instill high self-efficacy into my students because self-efficacy beliefs determine how students feel, think, motivate themselves and behave. Without encouragement and their own belief that they can do and master certain things, how would my students ever learn? They way I see my students learning and becoming successful, is by instilling that “can do” belief and attitude into my students” (p.3).

Saricoban (2008) examined the views of both teachers and their students on teacher self-efficacy for classroom management in foreign language learning/teaching process. The total 13 novice foreign language teachers and 96 students in the preparatory school at Ufuk University of Turkey were enrolled. Data were collected through questionnaires (Ohio Teacher Efficacy Scale (OSTES) that measures teachers’ self-efficacy for classroom management. The findings indicated that novice teachers had a moderately higher sense of teachers’ self efficacy in

(a) helping students to think critically,

(b) giving instructions, (c) classroom management issues and

(d) evaluation and assessment, whereas students had a moderately higher sense of their teachers’ self-efficacy only in teacher-student interaction.

Ghanizadeh and Moafian (2011) attempted to examine the relationship between EFL teachers' self-efficacy and their pedagogical success in Language Institutes. The role of teachers' years of teaching experience in their self-efficacy was investigated and finally, the relationship between teachers' age and their self-efficacy was studied. To do so, they collected the data from 89 EFL teachers according to available sampling from the different Language Institutes in Mashhad, a city in the Northeast of Iran. The results of correlation revealed that there is a significant relationship between teachers' success and their self-efficacy. Furthermore, significant correlations were found between teachers' self-efficacy, their teaching experience, and age.

## **2.4. PROBLEM-SOLVING SKILLS**

All over the past several decades, many studies have been done on the realm of Problem Solving Skills which contributed to our knowledge of Problem Solving Skills. Although Problem Solving Skills has gained popularity in K–12 and higher education, the majority of Problem Solving Skills research maintains to be conducted in the medical education field. Inside the body of research, some concerns, such as the effects of Problem Solving Skills on learning outcomes, on prospective ELT teachers have gained more attention than others. In the following sections, we will review Problem Solving Skills studies in two major research areas: student learning outcomes and implementation issues. So, in this chapter, firstly, the problem solving approach, secondly, the components of problem solving skills, thirdly, the applications of problem solving skills in the other disciplines, fourthly the need for problem solving in education and finally, the cooperation of problem solving skills and self-efficacy will be investigated.

### **2.4.1 The Components of Problem Solving Skills**

In Germany the problem solving methods studies started with the experimental work of the Gestaltists (Duncker in 1935) and with well known researchers such as Herbert Simon and Newell it continued through the 1960s and 1970s. The first researchers' realizations of problem solving were developed in laboratory settings without having the possibility to generalize situations in real world problem solving.

“During the most of the 20<sup>th</sup> century, the teaching and learning of problem solving have claim special time and attention. In 1926, textbooks contained so many word problems that Lutes described their solutions as the obvious "main end" of mathematics (p. 7). Nonetheless, attention has grown; encouraged it seems by two perceptions (Hembree (1992, p. 242) :

1. Problem solving as a basic skill required of all students
2. Problem solving as a complex mental activity.”

When the National Council of Supervisors of Mathematics (NCSM) declared that the problem solving is the first among ten essential proficiencies, the first perception was formalized (1977). In 1980, the National Council of Teachers of Mathematics chose problem solving to head its agenda (NCTM); a choice confirmed and extended in its current Curriculum and Evaluation Standards for School Mathematics (NCTM, 1989, p. 6).

Kilpatrick (1985) believed that the second perception is one of long standing but one that has grown with the passage of years. “Problem solving has come to be viewed as a process involving the highest faculties-visualization, association, abstraction, comprehension, manipulation, reasoning, analysis, synthesis, generalization-each needing to be managed and all needing to be coordinated”(Garofalo & Lester, 1985, p. 169). According to Lester (1980) and Riedesel (1967), as cited in Hembree (1992, p. 242) “the nature of problem solving as an essential but complex activity has induced researchers to study the process at levels seemingly unmatched in all mathematics teaching and learning. Like much research in education, this effort has taken place in the absence of overall plans or patterns, its outcomes then presented in the various journals, dissertations, project reports, and other outlets”.

Hembree (1992) also believe that “in light of the massive body of evidence, it may be wondered whether the findings have been amassed in coherent fashion or whether insights may have been missed because of disconnection and scatter. Reviews of research are commonly used to convey a sense of overall findings”. Additionally he said “indeed, the problem-solving research has been reviewed on many occasions, typically

using narration to condense related studies” (p.243). And finally he concluded that “aside from this common feature, however, the prior reviews seem characterized by broad variations in subject and style” (p.243).

#### **2.4.1.1. Higher Level Thinking/Critical Thinking**

Higher-level thinking is one of the important elements of cognitive skill, essential for developing problem-solving skills and accomplishing complex ill-structured problem solving processes. Those students in order to be an effective problem solver need to possess analytical, critical thinking, and metacognitive skills (Hung, Jonassen, and Liu, 2008).

Newell and Simon (1972) believe that articulating problem spaces requires analytical skills evaluating information involves critical thinking skills, and reflecting on one’s own problem-solving process requires metacognitive skills. Shepherd (1998) mentioned that fourth- and fifth-grade students achieved a considerably greater increase in critical thinking skills measured by the Cornell Critical Thinking Test (CCTT) than did the comparison group after cooperating in a 9-week PBL course, as cited in Hung et al. (2008).

Paul (1990, p.47) defines critical thinking as:

- “1. The art of thinking about your thinking while you’re thinking so as to make your thinking more clear, precise, accurate, relevant, consistent, and fair
2. The art of constructive skepticism
3. The art of identifying and removing bias, prejudice, and one-sidedness of thought
4. The art of self-directed, in-depth, rational learning
5. Thinking that rationally certifies what we know and makes clear wherein we are ignorant”.

In the realm of education, aims of recent approaches at cognitive processes, defined in terms of learner autonomy principles. Beyer (1995) defines critical thinking as the

ability to judge an idea/claim based on reliable evidence by determining one's own criteria.

According to Chance, (1986) critical thinking is “the ability to analyze facts, generate and organize ideas, defend opinions, make comparisons, draw inferences, evaluate arguments and solve problems” (p.6). Cosgrove (2010) asserts that “critical thinking could be viewed as a way or reasoning about and exploring thinking processes, to consistently reason at a high level requires not only being able to analyze thinking, but also to critique it” (p.10). Due to its various potential meanings, the concept has been challenged and criticized in the field of education. According to the Swedish National Agency for Education, “critical thinking” primarily stands for two things: the ability to reason and evaluate facts (Fossgammar & Sandberg 2006:p. 11-12). The foregoing statements emphasize on the significance of being able to differentiate between facts and opinions, and work to increase awareness.

Perhaps, the simplest definition is offered by Beyer (1995:8) “Critical thinking... means making reasoned judgments”. Basically, Beyer sees critical thinking as using criteria to judge the quality of something, from cooking to a conclusion of a research paper. Uzma (2003) believed that critical thinkers are skeptical and open-minded; they value fair-mindedness, respect evidence and reasoning, respect clarity and precision. They look at different points of view, and will change positions when reason leads them to do so. For Uzma, (2005) critical thinking involves asking questions, defining a problem, examining evidence, analyzing assumptions and biases, avoiding emotional reasoning, avoiding oversimplification, considering other interpretations and finally tolerating ambiguity.

“To sum up, critical thinking involves identifying, evaluating, and constructing arguments and the ability to infer a conclusion from one or multiple premises. To do so requires examining logical relationships among statements or data. Ambiguity and doubt serve a critical-thinking function and are a necessary and productive part of the process, urging one to continue their search until they reach the correct conclusion. Therefore, critical thinking is a necessity at all levels of education for a lifelong learning” (Alagözlü, N. 2007, p. 64).

#### **2.4.1.2. Self-Directed Learning/Life-Long Learning**

Learners in order to learn how to think and learn independently, should actively practicing problem solving processes and observing instructors' modeling problem solving, reasoning and metacognitive processes. Chrispeels and Martin (1998) used the reflective investigation process in the study and it presented the students in an administrative credential program with a metacognitive framework. This reflective process had great influence on student's problem solving by doing higher order thinking skills to identify personal and organizational factors that enacted the administrative problems they encountered in work settings.

Mphande et. al., (2007) indicated that "Self-directed learners are willing to take on responsibility for their learning; they see themselves as having a crucial role in their language learning. Again, autonomous learners believe in their ability to learn and to self-direct or manage their learning. Participants were sensitized to these attitudes as benchmarks of learners who will have benefited from PBL towards skills in lifelong learning" (p. 49). Gurin et.al. (2003) stressed that interaction with ethnic and cultural diversity in the undergraduate experience leads to enhanced learning outcomes. These outcomes are identified as enhanced intellectual engagement, a desire to think more critically and actively about social issues, and improvements in academic skills (Gurin et.al. 2003). The diversity experience has also been shown to impact problem solving skills (Chang, 1999, and Hurtado, 2001) and increased involvement in learning with groups and collaborations with other students (Terenzini, Cabrera, Colbeck, Bjorkland & Parente, 2001) as cited in Marcelo F. Vazquez (2008, p.17).

Knowles (1975) proposed that self-directed learning has been described as a:

...process in which individuals take the initiative, with or without the help of others. To diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies and evaluate learning outcomes" (p. 18).

### **2.4.1.3. Self-Perception and Confidence**

Smith and MacGregor, (1992) asserted that “problem-solving is one of many approaches to collaborative learning and is often called problem-based learning or problem-centered instruction”. They also believed that “by working in groups, analyzing complex problems, and working together to find solutions, students develop problem-solving skills and practice decision-making. Each of these elements, along with the instructor acting more as a facilitator, comprises the essential characteristics of problem-based learning” (p.6).

The effects of PBL according to the students’ viewpoints have been positively perceived. Studies show that students think of PBL to be more effective regarding promotion of their learning in dealing with complex problems (Martin et al., 1998), enhancement of their confidence in judging alternatives for solving problems (Dean, 1999), acquisition of social studies content (Shepherd, 1998), enrichment of their learning of basic science information (Caplow et al., 1997), development of thinking and problem-solving skills (Lieux, 2001), improvement of interpersonal and professional skills (Schmidt and van der Molen, 2001; Schmidt et al., 2006), and betterment of self-directed learning, higher level thinking, and enhancement of information management skills (Kaufman and Mann, 1996), as cited in Hung et al. (2008).

### **2.4.2. Application of Problem Solving Skills in Other Disciplines**

Pugalee (2004) conducted a research to investigate the effect of writing during mathematical problem solving. Through the study, a better understanding of the connection between problem solving and writing is realized. The written and verbal data show a relationship between the number of problem solving strategies tried by students and their success. Students who construct global plans are more successful problem solvers. Students who wrote descriptions of their thinking were significantly more successful in the problem solving tasks than students who verbalized their thinking.

Fenfang Li (2010) investigated the students' awareness of reading strategy use at the senior middle school level. The findings showed that "a moderate awareness of all the strategies; the students hold a preference for Problem Solving Reading Strategies, followed by Global and Support Reading Strategies; females show higher use of reading strategies than males in each individual category, as well as in the combined sub-categories. Finally, the readers' metacognitive awareness of reading strategies is closely linked to their language proficiency" (p. 184).

Hembree (1992) studied on experiments and relational studies in problem solving: a meta-analysis. He explained the problem solving skills issue as follow:

"Results in 487 reports were integrated by meta-analysis to study four reigns of problem solving: characteristics of problem solvers, conditions for harder and easier problems, effects of different instructional methods on problem solving performance and effects of classroom conditions on problem solving performance. Direct significant links were found between problem solving and various measures of basic performance, especially skills in basic mathematics and also there were weak correlations between problem solving and IQ measures. A format consisting of full problem statements supported by diagrams, figures, or sketches directly related to better performance; training for skill in such representations provided the largest performance improvement. During the early grades K-5, no method of problem-solving instruction emerged as superior. Heuristics in middle grades 6-8 seemed mildly better than other approaches and gained a distinctly superior status in high school. A positive impact on students' performance also resulted from teachers especially trained in heuristical methods" (p.242).

Cameron and Epling (1988) conducted a research on Successful Problem Solving as a Function of Interaction Style for Non-native Students of English. They investigated on the interaction styles and success at problem solving by students of English as a second language. They chose students from a continuing education program at Alberta Vocational Centre in Edmonton, Alberta. They mentioned that their "subjects were chosen on the basis of active or passive participation in the classroom. Following this selection, subjects were randomly assigned to Active-Active, Active-Passive, or



Passive-Passive groups which were comprised of eight same-sex dyads. Each dyad was required to solve ten problems on a two-way interaction task. Results indicated that Active-Active and Active-Passive pairs were equally successful at the task and both were superior to the Passive-Passive group. An analysis of those factors that may have contributed to task solution was conducted. It is argued that these results have practical importance for teaching English as a second language (p. 392-406). They also recommended that in group work activities teachers should be careful about distribution of passive and active students, teacher should place passive students with active students. It means that group working activities help weak and passive students get more responsibility in their working with the other students that it leads them to work hard as well as the active students.

Lubienski (2000) examined 7th-graders' experiences with a problem-centered curriculum and pedagogy, focusing on socio economic status (SES) differences in students' reactions to learning mathematics through problem solving. She indicated that “although higher SES students tended to display confidence and solve problems with an eye toward the intended mathematical ideas, the lower SES students preferred more external direction and sometimes approached problems in a way that caused them to miss their intended mathematical points”. She mentioned “an examination of sociological literature revealed ways in which these patterns in the data could be related to more than individual differences in temperament or achievement among the children”. Investigator finally suggests that “class cultural differences could relate to students' approaches to learning mathematics through solving open, contextualized problems” (p. 454).

Güçray (2003) analyzed decisional self-esteem, decisional stress and perceived problem-solving skills of secondary education students and to find out whether there is a significant difference in adolescent's decision-making behaviors, and problem-solving skills from the aspect of some socio-demographic variables (gender, age, school type and education level of the parents).

Güçray asserted that in one hand, “there were significant differences between male and female adolescents considering decisional self-esteem and decisional stress, but on the

other hand, no difference was observed when their perceived problem-solving skills were considered. Gender and school type were found to be as effective variables on the behaviors of decision-making and also the school type and the education level the mothers were found to be as effective variables on perceived problem-solving skills. The study has indicated that students from private schools are more skillful in cognitive processes such as decision-making and problem solving than the students from Anatolian high-schools and State-high schools (p. 29).

Heppner, Pretorius, Wei, Lee, and Wang (2002) through research with Black South African samples examined the generalizability of the factor structure of the PSI through confirmatory factor analysis and also they examined the relationship between problem solving and psychological distress and tested a Problem-Solving Confidence mediational model of psychological distress through structural equation modeling. They found out that “the estimates of the factor structure as well as other reliability and validity estimates provided strong support for the generalizability of the PSI to South African Black college students. The results also provided partial support for the mediational model of psychological distress” (p. 484).

Nota, Heppner P.P., Soresi, Heppner M.J., (2009) studied the Problem Solving Inventory’s psychometric estimates with a large sample of Italian high school students across geographically representative regions of Italy. They revealed “a similar but slightly different PSI factor structure in the Italian PSI, as well as sex differences (which have been rarely found in the U.S. samples) and different associations with intelligence. In addition to providing useful psychometric information for an Italian PSI, they also identified the complexities of problem-solving appraisal cross-culturally” (p. 17).

Aslan (2007) conducted a research in order to determine how pre-service Turkish teachers perceive themselves in terms of problem solving skills. Students attending Department of Turkish Language Teaching of Gazi University Education Faculty in 2005-2006 academic year constitute the study group (n= 270) of this research in which survey model was utilized. Aslan utilized Problem Solving Inventory scale developed by Heppner & Peterson and Personal Information Form. According to the findings of the research, “pre-service Turkish teachers were sufficiently qualified on the subject of

problem solving skills and statistical significance was found in favor of male candidates in terms of “gender” variable” (p. 483).

Lee, Tan, Goh, Chial, and Chin (2000) studied on the extent to which science teachers taught problem solving in elementary science. They sought the science teachers’ attitudes toward using science instructional techniques in general and the problem-solving teaching approach in particular. It was found that the most emphasized activities were completion of science workbooks, teachers’ explanation of concepts, and hands-on activities. The least emphasized activities were computer-based learning, activities beyond the textbook and workbook, and visits to the ecology garden and other parts of the school. Only about one-third of the teachers often conducted activities pertaining to problem solving. Most of them were more concerned about covering the science syllabus for examinations, the physical constraints of the learning environment, and pupils’ abilities and motivation. On the other hand, teacher-related factors ranked low: these included teachers’ preference for teaching and learning outcomes, their ability to maintain control over pupils’ learning, feelings of inadequacy of science knowledge, and insufficient understanding of the pedagogical method of teaching problem solving (retrieved from *Research in Science & Technological Education*, Volume 18, Number 1).

Hung, (2008) investigated the effect of instruction in problem-solving skills on computer engineering majors’ performance in programming in the Verilog. Comparisons were made among two treatment groups (deduction and analogy) and a control group, whose pretest and posttest scores were analyzed with the analysis of covariance (ANCOVA) statistical procedure. The findings of the study revealed that problem-solving skills’ instruction significantly increased students’ achievement.

AKA, GÜVEN<sup>1</sup> and AYDOĞDU (2010) also worked on the effect of problem solving method on science-process skills and academic achievement. Their sample was consisted of 86 3rd class teacher candidates of Gazi Education Faculty. They used quasi-experimental design which was pre-test/post-test control group. They taught for experimental group problem solving method, and for control group taught traditional teaching methods. They was not found any significant difference between experimental

and control group's students' pre test scores. Finally the result of post test revealed experimental group students have higher mean scores than control group students. They concluded that "the basic learning which pupils achieve from these initial experiences can be used as a basis for building a more extensive understanding of science process and problem solving skills in the later education life. So, this research has a critically importance in terms of science education related to science process skills, achievement and problem solving method" (p 20).

### **2.4.3. The Need to Teach Problem Solving Skills**

Today, problem solving is recommended as a basic skill. The results of recent research in problem solving, changing professional standards, new workplace demands, and recent changes in learning theory inspired educators and trainers to revise curricula and include integrated learning environments which encourage learners to use higher order thinking skills, and in particular, problem solving skills.

Because of criticisms leveled against educational system from many sections, teachers always keep looking for the ways to improve teaching, learning, and the curriculum. Researchers such as Hiebert (1996) maintain that the issue that has negatively affected our educational system is the divorce of content from application. Our learners are used to learning facts and rote procedures with few ties to the context and application in a learning environment for basic skills as well as their application in various contexts.

Nowadays, experts strive to incorporate problem solving with education as a key component of the curriculum. According to many national standards (AAAS, 1993; NCSS, 1997; NCTE, 1996; NCTM, 1989, 1991) in order for the learners to become successful problem solvers, they need to be trained in problem solving curriculum. As an example, the 1989 Curriculum Standards of the National Council of Teachers of Mathematics (NCTM) states: "Problem solving should be the central focus of the mathematics curriculum. As such, it is a primary goal of all mathematics instruction and an integral part of all mathematical activity. Problem solving is not a distinct topic, but a process that should permeate the entire program and provide the context in which

concepts and skills can be learned” (National Council of Teachers of Mathematics, 1989, p. 23).

Today’s workplaces often demands high levels of thinking and problem solving skills, while learners from all ages still suffer from lack of these skills. Mikulecky and Kirkley (1997) indicated that “economic, organizational and technological forces have changed the nature of most workplaces” (p.18). Among these forces are globalization of the marketplace, democratization of workplace decision-making, synchronous production, new technologies, and multiple roles on most jobs. The U.S. Department of Labor’s Secretary's Commission on Achieving Necessary Skills (1991) reported that "teaching should be offered in context, and students should learn content while solving realistic problems." According to Barrows (1980) and Woods et al., (1997) medical, engineering, and business schools are revamping and reforming their curricula to focus on problem solving as a key component of the professional curriculum.

Nash (1994) expressed that each 5.5 years the scientific knowledge is changing, with regard to this, students are more likely develop their knowledge, the way of thinking which, in one hand, ”involves basic skills and, on the other hand, requires learners to use their knowledge in a variety of domains, perform critical analysis, and solve problems” Kirkley (2003, p. 1). Kirkley also believes “as educators call for more integrated instruction that problem solving often serves as a core curriculum strand that joins together various disciplines, rules, concepts, strategies, and skills when educators and instructors call for more integrated instruction” (p.1).

It is important to keep in the mind that the emphasis on problem solving should not cause us to forget the urgency of attention to basic literacy skills in schools. Learners, in order to get problem solving skills, need to mastery of basic literacy skills Kirkley (2003, p. 2). Bintz (1997) reported, as cited in Kirkley (2003, p. 2), that the results of the 1994 National Assessment of Educational Progress (NAEP):

- At least one third of students in 4th, 8th, and 12th grade failed to read at a basic level,
- Twenty four percent of fourth graders, slightly more eighth graders, and more than 33 percent of 12th graders scored at a proficient level, and

- Finally fewer than five percent of fourth, eighth, and 12th graders reached an advanced level.

From the foregoing statements Kirkley (2003, p. 2), concluded that “the emphasis on problem solving adds to the emphasis on basic literacy skills in the schools, but not replaces them. The place of problem solving skills in national standards and tests, “raises the bar” from minimum competency to world-class skills.” The notion of problem solving broach some important principles for teaching it therefore, it is quiet significant to the mentors to utilize these principles when they’re teaching. Kirkley (2003, p. 12) summarized some of them as follows:

- 1) “For any “real-world” job or work skill, identify both the declarative and procedural knowledge components. Give each appropriate instructional emphasis.
- 2) First introduce a problem solving context, then either alternate between teaching declarative and procedural knowledge, or integrate the two.
- 3) When teaching declarative knowledge, emphasize mental models appropriate to the problem solving to come, by explaining knowledge structures and asking learners to predict what will happen or explain why something happened.
- 4) Emphasize moderately- and ill-structured problem solving when far transfer is a goal of instruction.
- 5) Teach problem solving skills in the context in which they will be used. Use *authentic* problems in explanations, practice and assessments, with scenario-based simulations, games and projects. Do not teach problem solving as an independent, abstract, decontextualized skill.
- 6) Use direct (deductive) teaching strategies for declarative knowledge and well structured problem solving.
- 7) Use inductive teaching strategies to encourage synthesis of mental models and for moderately and ill-structured problem solving.
- 8) Within a problem exercise, help the learners understand (or define) the goal, then help them to break it down into intermediate goals.
- 9) Use the errors learners make in problem solving as evidence of misconceptions, not just carelessness or random guessing. If possible, determine the probable misconception and correct it.
- 10) Ask questions and make suggestions about strategy to encourage learners to reflect on the problem solving strategies they use. Do this either before or after the learner takes action. (This is sometimes called *cognitive coaching*).

- 11) Give practice of similar problem solving strategies across multiple contexts to encourage generalization
- 12) Ask questions which encourage the learner to encourage the learner to grasp the generalizable part of the skill, across many similar problems in different contexts.
- 13) Use contexts, problems and teaching styles which will build interest, motivation, confidence, persistence and knowledge about self, and reduce anxiety.
- 14) Plan a series of lessons which grow in sophistication from novice-level to expert-level understanding of the knowledge structures used.
- 15) When teaching well-structured problem solving, allow learners to retrieve it (e.g., from a reference card). If the procedure is frequently used, encourage memorization of the procedure and practice until it is automatic.
- 16) When teaching moderately-structured problem solving, encourage the learners to use their declarative (context) knowledge to invent a strategy which suits the context and the problem. Allow many “right” strategies to reach the solution, and compare them for efficiency and effectiveness.
- 17) When teaching ill-structured problem solving, encourage the learners to use their declarative (context) knowledge to define the goal (properties of an acceptable solution), then invent a solution. Allow many “right” strategies and solutions, and compare them for efficiency and effectiveness.”

#### **2.4.4. The Relationship between Problem-Solving Skills and Self-Efficacy**

As it is mentioned before, Bandura (1997) defines self-efficacy as “beliefs in one’s own capabilities to organize and execute the courses of action required to produce given attainment” (p.3). Confidence is one the characteristics of self-efficacy and it indicates student abilities to encoder with problems and the ability to solving them. Kinzie, Delcourt, and Powers (1994) and Schunk (1995) indicate to the Self-efficacy’s influence on a learner’s willingness to take part in a learning task, and show great effort in solving problems. Therefore, if a learner experiences a high level of confidence because of progress achieved in solving a problem or challenge, the learner will believe he/she is capable of having a high degree of success in solving similar problems; which strengthens self-efficacy and reinvigorates learning (Schunk, 2001).

The concept of learning environment in relation to self-efficacy is the one can influence the other. In a study by Licht and Kistner (1986) as cited in Vazquez (2008, p. 57), a teacher's perception (the learning environment) of a disabled student's low self-efficacy and skills (self-efficacy) can prompt the teacher to provide easier tasks to accomplish. "This can lead to increased self-efficacy and problem solving skills for the disabled student, because he/she can now complete the task. As self-efficacy rises, the teacher's perception of the disabled student's capabilities will change and task difficulty can become more challenging" (Vazquez 2008, p.57).

Research in other disciplines shows the effective relationship of self-efficacy and problem solving skills in outcome achievements. For instance Schlundt and his colleagues (1999) also reported a development of self-efficacy beliefs in insulin administration management, problem-solving skills, and flexibilities in managing strategies to overcome the difficulty of dietary adherence among adolescent diabetic patients who attended for 2-weeks PBL summer program. They found out that, instead of just teaching the facts, the PBL course helped the patients justify the self-care guidelines and consider more alternatives to search better solutions and strategies to encounter with the difficult lifestyle.

Schunk (2001) believes that learning vicariously through others is another example of the influence of the learning environment on self-efficacy. Aside from a learner taking an active role in the learning process, the learner can also enhance his/her learning by observing the learning activities and consequences of others. An example of this is when a student realizes that preparing for college is important after noticing how older siblings of peers have difficulty finding employment because they don't have a college education. Even though vicarious learning does have an impact on self-efficacy, it is not as strong as active participation in a learning process.

Wigfield (1994) believed that expectations about learning outcomes are another important influence on self efficacy. If a learner feels efficacious enough about a particular learning task and is confident in the positive result of the learning outcome, more effort will be placed on the learning activity. More value is then placed on this learning activity, mastery is built upon, and self-efficacy increases.



Self-efficacy and its influence on academic performance have been linked to the strength of a student's commitment and motivation for academic achievement (Schunk & Miller, 2002). Across various disciplines with children and adolescents, research has shown significant correlations between self-efficacy and academic achievement (Lent, Brown, & Larkin, 1986; Pajares, 1996; Schunk, 1995). Specifically in high school students, those who had high self-efficacy for problem-solving activities also had higher academic persistence measures than students with low self-efficacy for problem-solving (Bouffard-Bouchard, Parent, & Parivee, 1991).

In order to increase self-efficacy in the learning environment, students need to be in an environment that allows them to feel a strengthening of task performance and accomplishment. The implementation of such critical factors as learning goals, learning-process goals, performance feedback, and performance modeling is needed in a learning environment that strengthens self-efficacy.

Arizpe and Dwyer (2006) established study in order to determine if an introduction to a solution to the Rubik's Cube could enhance students' problem-solving abilities, increase their general interest in mathematics, and enhance students' problem solving self-efficacy. They found out that "a significant increase in students' problem solving abilities and self-efficacy, but no significant increase was found in student interest. Their further analysis showed a statistically significant increase in girls' problem solving skills but not in boys. This may have been as a result of the algorithmic approach taken to solve the Rubik's Cube" (p. 9-10).

## **2.5. CONCLUSION**

This chapter presented a review of the relevant literature related to self-efficacy, academic self-efficacy and problem solving skills in relation to foreign language achievement. Theoretical perspectives regarding student persistence were reviewed with a focus on self-efficacy theory and problem solving approach in related to social cognitive theory. Specific attention was focused on the learners' self-efficacy, academic self-efficacy and their problem solving skills.

Inspired by these studies, the field of education has recently begun to move from the use of traditional pedagogical approaches to innovative ones which encourage lifelong, collaborative, student-centered and self regulated learning. Bandura's Self-efficacy theory helped research in a variety of domains such as academic achievement, health related behavior, parenting styles, children's self-concept, Computer Assisted Language Learning (CALL) and Computer Self-efficacy, athletic performance, and clinical disorders (clinical therapy) and in the field of linguistics (forensic linguistics). Considering age-related changes in memory functioning , self-efficacy theory have been used to understand performance deficits in the elderly, suggesting that decline in memory ability will be reflected in choice of activities, effort expended, and persistence of actions in tasks requiring memory.

In this aspect, perceived self-efficacy according to Bandura (1994) "is concerned with people's beliefs in their capabilities to exercise control over their own functioning and over events that affect their lives. Beliefs in personal efficacy affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression" (p.13). Two decades of research have clearly established the validity of self-efficacy as a predictor of students' motivation and learning. Although self-efficacy correlates with other related constructs, it has also shown discriminant validity by its unique predictiveness of these outcomes when included in multiple regression analyses. It has shown convergent validity in predicting diverse forms of motivation, such as students' activity choices, effort, persistence, and emotional reactions. Finally, when studied as a mediating variable in training studies, self-efficacy has proven to be responsive to improvements in students' methods of learning (especially those involving greater self-regulation) and predictive of achievement outcomes (Zimmerman, 2000).

I believe that everything will be possible if we actually know what we are doing. In the field of self-efficacy belief, academic self-efficacy and problem solving skills in foreign language achievement, on one hand, by using proper methods and approaches to identify the problems and find the best and effective ways to encounter the problems we can overcome the problems and get the satisfactory results, on the other hand, the resulting outcomes can help us to improve our self-efficacy and consequently academic

self-efficacy during our academic life. As it is mentioned before people who have high level of self-efficacy, they can manage difficulties when they are encounter with them, whereas those who lack of self-efficacy are likely to magnify risks or threats. There are many studies have been carried out and their findings almost confirm the claims made above.

By observing the result of studies and investigating on the comments and explanations of advocators of self-efficacy and problem solving it can be concluded that their educational construct, to some extent, are alike and pursue common goals and at the same time these two approaches, according to the result of studies have been carried out, had positive effect on learner's achievements, and in some cases are connected with together but not directly.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1. INTRODUCTION**

The review of literature in Chapter 2 highlighted several special concerns of Self-Efficacy, Academic Self-Efficacy and Problem Solving Skills in relation to verity of disciplines and especially to Foreign Language Achievement. This chapter explains the methodology used in conducting this study, including how research was designed, a description of the sampling of the population and institution, instruments that were used in conducting the study, validity and reliability of the instruments, methods and finally procedures of data collection, data analysis, and techniques for the quantitative analysis of the collected data.

#### **3.2. RESEARCH DESIGN**

The research design of this study is both comparative and correlational in nature. The purpose of the study is to find out if there is correlation between self-efficacy, academic self-efficacy, problem solving skills and foreign language achievement. Data from three questionnaires were obtained from prospective freshman ELT teachers. Therefore, this research project was primarily a correlational study in the sense that in a correlational study, as Johnson & Christensen (2004) maintain, the researchers study relationships among two or more quantitative variables and make predictions based on an understanding of those relationships. In this study the researcher did not carry out any experiments or manipulate data in any way; data were just collected through three different questionnaires.

This study is also descriptive. A descriptive study is one in which the data are collected without changing and manipulating the environment. It is also defined as any study that is not truly experimental. In terms of methodology, the survey procedures and instruments like questionnaires were used to collect data. Moreover, the study can be

considered as a quantitative research because no qualitative research methods such as interviews, observation and case studies were employed in the study.

Finally, as the study tries to compare means between groups, such as males and females, to discover the potential significant and insignificant relationships between them in relation to variables under investigation, it could be identified as a comparative study (<http://www.merriam-webster.com/dictionary/comparative>).

### **3.3. POPULATION AND SAMPLING**

The purpose of the study was to explore the correlation between self-efficacy, academic self-efficacy, problem solving skills and foreign language achievement. To do this, the study was conducted at the Department of English Language Teaching of Hacettepe University in Ankara / Turkey. A total of 100 (24 males and 76 females) freshman prospective English language teachers were selected and they agreed to participate in the study voluntarily and 100% response rate was maintained.

The data were collected from this population by distributing 100 questionnaires at the beginning of the 2012 Spring semester. As there were a large number of freshman students, it was easy to the researcher to select a good representative sample of the general university population. After collecting data, the participants were classified into three different groups, i.e., low group which included those with GPA ranging from 2 to 2.50, moderate group with GPA ranging 2.51 to 2.99, and finally high group whose GPA ranged from 3 to 4. It should be noted that age of the participants was not included in this study.

### **3.4. DATA COLLECTION INSTRUMENTS**

Three instruments were used in the current study. These include College Self-Efficacy Inventory (CSEI, Solberg et al., 1993) which is designed for measuring more general self-efficacy as well as social self-efficacy, the College Academic Self-Efficacy Scale (CASES, Owen & Froman, 1988) which measures self-efficacy specifically for academics in college, and Problem Solving Inventory (PSI, Heppner & Petersen 1982)

which measures learner's behaviors and attitudes typically associated with successful problem solving.

### 3.4.1. College Self-Efficacy Inventory

The CSEI (Solberg et al., 1993) was utilized to measure Self-Efficacy of prospective ELT teachers. The CSEI is a self-reported, 19-item three-factor model (Appendix A) with three subscales of Course Efficacy (CE), Roommate Efficacy (RE), and Social Efficacy (SE). The CSEI includes 19 items using 9 point-Likert type scale ranging from 0 (totally unconfident), 1 (very unconfident), 2 (unconfident), 3 (somewhat unconfident), 4 (undecided), 5 (somewhat confident), 6 (confident), 7 (very confident) and finally, 8 (totally confident). The *Course Self-Efficacy* subscale contains 7 items (14, 5, 12, 3, 6, 19, 10), the *Roommate Self-Efficacy* 4 items (4, 9, 17, 11) and *Social Self-Efficacy* 8 items (1, 13, 16, 18, 7, 15, 2, 8). Table 1 shows the basic characteristics of CSEI.

Table 1: Characteristics and Score Categories of CSEI and its Subscales

Component	Number of Items	Range	Likert-scale
Course	7	0 – 56	9 points
Roommate	4	0 – 32	9 points
Social	8	0 – 64	9 points
Total	19	152	

The scoring process was performed by summing the scores on each item and dividing by the number of items in the scale. Each participant had the chance of scoring between a range of 0 (the lowest amount of confidence) and 152 (the highest amount of confidence). The original internal consistency reliability analysis of the instrument (Solberg et al., 1993) reported a Cronbach's  $\alpha$  of .93 as a single factor, confirming a high reliable measure for the study. DeWitz & Walsh (2002) tested the 19-item three-factor model (Solberg et al., 1993). Internal consistency reliability was strong (alpha = .92) for the measure while the alpha obtained for the original study (Solberg et al., 1993) was .93 (Table 2).

Table 2: Cronbach's reliability coefficients for CSEI

Solberg et al., 1993	$\alpha=.93$
DeWitz & Walsh (2002)	$\alpha=.92$

Additionally, Gore, Leuwerke, and Turley (2006) also used CSEI in their studies with an overall Cronbach Alpha Coefficient of .92. Their study reported adequate internal consistency coefficients for the three subscales of *Course efficacy*,  $\alpha = .88$ , *Roommate efficacy*,  $\alpha = .83$ , and *Social efficacy*,  $\alpha = .86$  (Table 3).

Table 3: Cronbach's reliability coefficients for CSEI

Component	Cronbach's $\alpha$
Single factor	.92
Course	.88
Roommate	.83
Social	.86

In the present study the same efficacy scale was carried out and the Cronbach's Alpha Coefficient found for an overall value was .76. As for the subscales, it was .86 for Course efficacy, .70 for Roommate efficacy, and .89 for Social efficacy (Table 4).

Table 4: Cronbach's reliability coefficients for CSEI

Component	Cronbach's $\alpha$
Overall CSEI	.76
Course-Efficacy (CE)	.86
Roommate-Efficacy (RE)	.70
Social-Efficacy (SE)	.89

### 3.4.2. College Academic Self-Efficacy Scale

The College Academic Self-Efficacy Scale (CASES), developed by Owen and Froman (1988), was used to assess academic self-efficacy among prospective ELT teachers. The

CASES is a 33-item self-report instrument (Appendix B) which measures academic self-efficacy by asking participants to rate how confident they feel regarding their abilities to perform common academic-related behaviors in college (Owen & Froman, 1988). The questionnaire uses a 5-point Likert-type scale ranging from A or "Lots" to E or "Little". An example item is: "Listening carefully during lecture on a difficult topic." Each participant had the chance of scoring between a range of 33 (the lowest amount of confidence) and 165 (the highest amount of confidence).

The test-retest reliability of the CASES was also examined by Owen & Froman (1988) through administering the questionnaire twice over an 8-week period and they reported an alpha coefficients of .90 and .92, respectively. Similarly, a test-retest reliability of .85 was reported by the authors after the 8-week interlude between administrations. The alpha coefficient in the present study is .82 which indicates a strong reliable index (Table 5).

Table 5: The test-retest reliability of the CASES

Test	Retest
$\alpha=.90$	$\alpha=.92$

The factorial validity of CASES was established by the researchers through conducting another study using a new sample of 122 students. The participants were asked to rate the difficulty level of performing tasks highlighted the 33-item instrument. The scrutiny of the responses determined that items students found relatively easy to accomplish were those in which students most likely had more experience whereas items with the highest difficulty level for the students were most likely the result of having less experience or success with the task. Owen and Froman (1988) contended that the results were in keeping with Bandura et al. (1996) self-efficacy theory.

The CASES is different from most academic self-efficacy instruments in that the instrument assesses feelings of academic self-efficacy as a whole rather than teasing out individual constructs or areas of academic self-efficacy such as English, mathematics, and reading. In the same vein, Owen and Froman (1988) believed that CASES can



provide specific diagnostic findings that can exercise holistic change to enhance overall academic self-efficacy. The basic characteristics of the CASES are given in table 6.

Table 6: Characteristics and Score Categories of College Academic Self-Efficacy Inventory (CASEI)

Number of Items	Range	Likert-scale
33	33 – 165	5 points

### 3.4.3. Problem Solving Skills

The third scale used in this study was the Problem-Solving Inventory (PSI; Heppner & Petersen, 1982; Heppner, 1988). It is a 32-item questionnaire (Appendix C) that is designed to measure perceptions of problem-solving behaviors and problem-solving attitudes using a 6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree), with low scores indicating an effective problem solver and high scores indicating an ineffective problem solver.

The PSI consists of three dimensions: (a) Problem Solving Confidence (PSC) with 11 items, e.g., “I am usually able to think up creative and effective alternatives to solve a problem), (b) Approach-Avoidance Style (AAS) with 16 items, e.g., “After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened”, and (c) Personal Control (PC) with 5 items, e.g., “When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation” (Table 7).

Table 7: Characteristics and Score Categories of Problem-Solving Inventory (PSI) and its Subscales

Component	Number of Items	Range	Likert-scale
Problem Solving Confidence	11	11 – 66	6 points
Approach -Avoidance Style	16	16 – 96	6 points
Personal Control	5	5 – 30	6 points
Total	32	192	

Because of the vast use of the PSI, normative data is available on a range samples. A normal adult sample exhibited a total PSI score of approximately 77 ( $M = 76.9$ ,  $SD = 22.9$ ), with factor scores: PSC approximately 22 ( $M = 21.8$ ,  $SD = 8.6$ ), AAS approximately 40 ( $M = 40.2$ ,  $SD = 11.5$ ), and PC approximately 15 ( $M = 14.9$ ,  $SD = 6.2$ ) (Heppner, 1988).

The reliability and validity estimates of the PSI have been established by more than 120 empirical studies and the Coefficient alphas across various samples range from .72 to .90 and the test-retest correlations over two-week to two-year interludes range from .60 to .80 ( Heppner, 1988; Heppner et al., 2004). Additionally, the three subscales of PSI have also exhibited good internal consistency reliability with PSC ranges from .78 to .85, AAS ranges from .84 to .90, and PC ranges from .72 to .74 (Heppner, 1988). The Cronbach's reliability coefficients for PSI in other studies are given in table 8.

Table 8: Cronbach's reliability coefficients for PSI in other studies

Source	Component	Cronbach's $\alpha$	Test-retest		
Heppner (1988) Heppner et al., (2004)	Overall PSI	.72 - .90	.60 – .80		
	(PSC)	.78 – .85			
	(AAS)	.84 - .90			
	(PC)	.72 - .74			
Heppner (1988) Heppner et al., (2002)	Overall	Week 1 .72-.90	Week 2 .89	Week 3 .81	
	(PSC)	-	.85	.78	
	(AAS)	-	.88	.77	
	(PC)	-	.83	.81	

Studies with different samples, e.g., substance abusers, college students, and cultural groups, e.g., Black South Africans, have demonstrated acceptable internal consistency for PSI with alpha coefficients ranging from .72 to .90 (Heppner, 1988; Heppner et al., 2002). Furthermore, the reliability coefficients for overall PSI and for each factor in the 2nd week were .89, .85, .88, and .83, and in the 3rd week they were .81, .78, .77, and .81, respectively. However, the last retesting exhibited coefficients of .60, .65, .61, and .44 (Heppner, 1988). The study conducted to assess the validity estimates of PSI (Larson, Toulouse, Ngumba, Fitzpatrick, Heppner, 1994) indicated that the inventory is positively related to subjective career distress, active problem-solving and academic self-efficacy, .38, .37, and .38, respectively. In this study, Cronbach's alpha exhibited good reliability at .75 for the PSI, high reliability for PSC,  $\alpha=.84$ , and AAS,  $\alpha=.80$  and an acceptable reliability for PC  $\alpha=.65$ . Table 9 illustrates the Cronbach's reliability coefficient of the PSI.

Table 9: Cronbach alpha coefficient of the PSI

Overall PSI	$\alpha=.75$
Problem Solving Confidence (PSC)	$\alpha=.84$
Approach-Avoidance Style (AAS)	$\alpha=.80$
Personal Control (PC)	$\alpha=.65$

### 3.5. DATA COLLECTION AND ANALYSIS PROCEDURES

After getting permission from the institute of social sciences at Hacettepe University in Ankara/Turkey, I gathered the data from the Department of Foreign Languages Education in early days of April 2012 and it took my three days to collect the data needed for the study. Exactly 100 paper-based questionnaires were distributed to the students who enrolled in this study. The data for the study were gathered from three prospective ELT teachers' groups. There were 33 students in the first and second groups, whereas the third group had 34 students. First of all, all the questionnaires were codified secretly in a way that each one was assigned a specific number from 1 to 100 according to their participant's class attendance sheet. Therefore, it was easy to match each respondent's data sheet with his/her GPA later on. This was done on purpose in order to obtain true answers and make them feel certain that their information will be

kept confidential. Fortunately, participants had enough time to respond to the questions and there were not any missing data.

On the days of the survey, each class instructor was given a packet of surveys for their respective classes, each survey had a 'directions' or 'instruction' part, written in English, explaining the purpose of the survey and asking their permission or consent to participate. In order for the participants to produce more thoughtful responses, they were asked to complete the measures one at a time and were not allowed to begin responding to the next measure until all participants had completed the measure.

Participants' grade point averages (GPA) were gathered from the Department of Foreign Languages Education. As the data were gathered at the beginning of the Spring semester 2012, students' GPA for the Fall semester 2011 was used. After the codification of the data, the researcher used SPSS version 17.0 for windows to analyze the collected data for the quantitative part. After getting the reliability of the data, the researcher found out the distribution of the data was normal.

### **3.6. CONCLUSION**

This chapter presented the methodology of a research study that investigated the relationships among self-efficacy, academic self-efficacy, problem solving skills and foreign language achievement among freshman prospective ELT students. It consisted of an introduction, Research Design, Population and Sampling, Data Collection Instruments, Data Collection and Analysis Procedures. In the next stage, Pearson Product moment Correlational Coefficient was carried out to determine the correlation coefficient between FLA and SE, ASE, and PSS.

## **CHAPTER 4**

### **ANALYSIS OF THE DATA**

#### **INTRODUCTION**

##### **4.1. INTRODUCTION**

In this chapter, data collected to investigate the relationships among self-efficacy, academic self-efficacy, problem solving skills and FLA were analyzed to see if there is any relationship between the variables measured in this study. The results are organized in five major sections corresponding to the research questions that the study was designed to answer. In the first research question, the investigator sought to find out if there is any relationship between self-efficacy and foreign language achievement. In the second research question, the study looked for the existence of a significant relationship between academic self-efficacy and foreign language achievement. In the third question, the researcher studied how problem solving and its components (Problem Solving Confidence, Approach-Avoidance Style and Personal Control) affect foreign language achievement.

In the fourth question, the researcher tried to answer whether or not gender is a predictor in developing self-efficacy, academic self-efficacy and problem skills. The fifth research question investigated the potential differences between high successful ELT prospective teachers and unsuccessful ones in terms of a) SE, b) ASE, and c) PSS. In the following parts of this chapter all of these questions will be answered in details.

##### **4.2. RESULTS FOR RESEARCH QUESTION 1**

The results are given here based on the variables included in the study where SE along with its three subscales (Course-Efficacy, Social-Efficacy and Roommate-Efficacy), overall ASE, and PSS with its three dimensions (Problem Solving Confidence, Approach Avoidance Style, and Personal Control) were our independent variables and FLA was the only dependent variable. The objective is to provide answers to the research questions posed in chapter one.

*Research question 1: Is there any relationship between self-efficacy and its subscales (Course-Efficacy, Social-Efficacy and Roommate-Efficacy) and foreign language achievement?*

Regression analysis shows that there is a significant positive relation between overall self efficacy  $F(1, 98) = 18.171, P=.000; P<.05$  and FLA for prospective ELT teachers (table 10). The R is .39 and the R<sup>2</sup> is .16 which represents 16% variability among the variables in the model. In addition, the analysis of the Beta ( $B=-.39$ ), which contains the coefficients that indicate the magnitude of predictions for a variable, reports a moderate predictor for overall SE in the model of increased FLA.

Table 10: Relationship between Overall Self-Efficacy and FLA

	R	R Square	Anova Sig.	F	Beta value	Coefficient t
Overall Self-Efficacy	.39	.16	.000	18.171	-.39	-4.263

\*  $P<.05$

Figure 1. Histograms for significant variables predicting correlation between overall self-efficacy and FLA

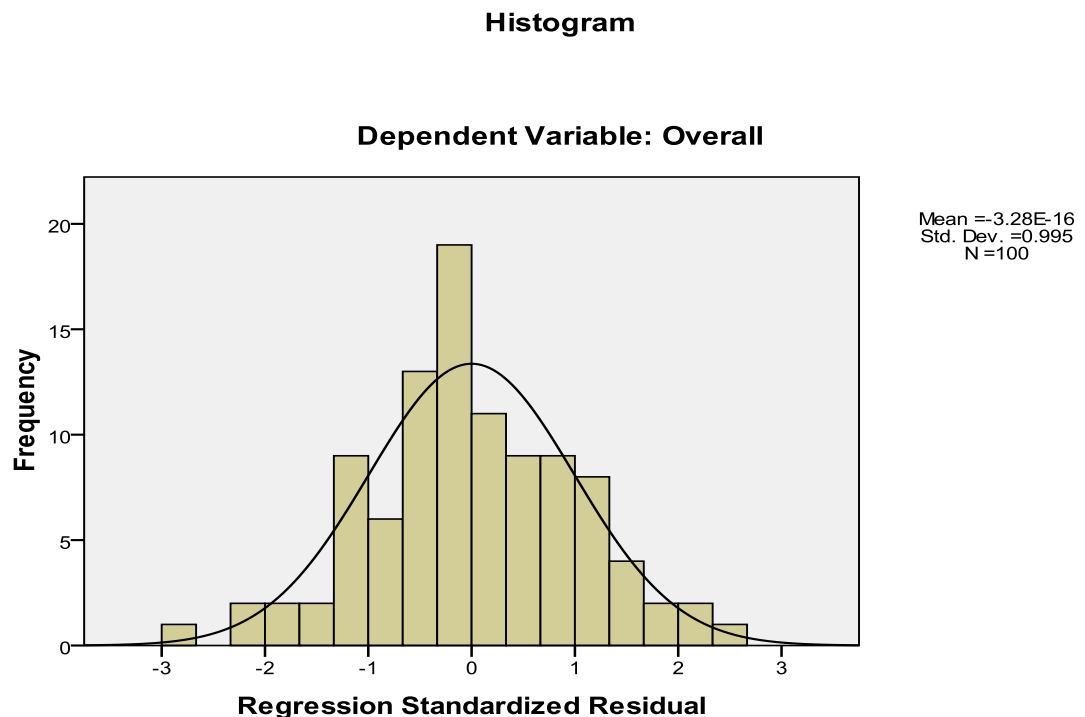


Figure 2. Normal probability plot for significant variables predicting correlation between Overall Self-Efficacy and FLA

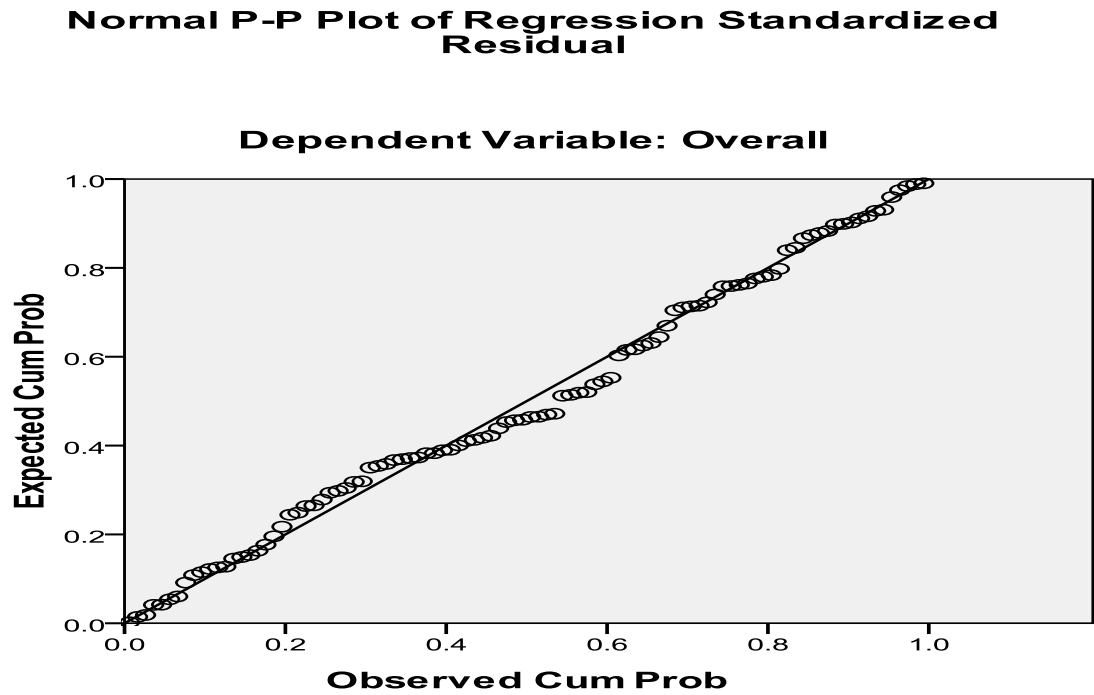
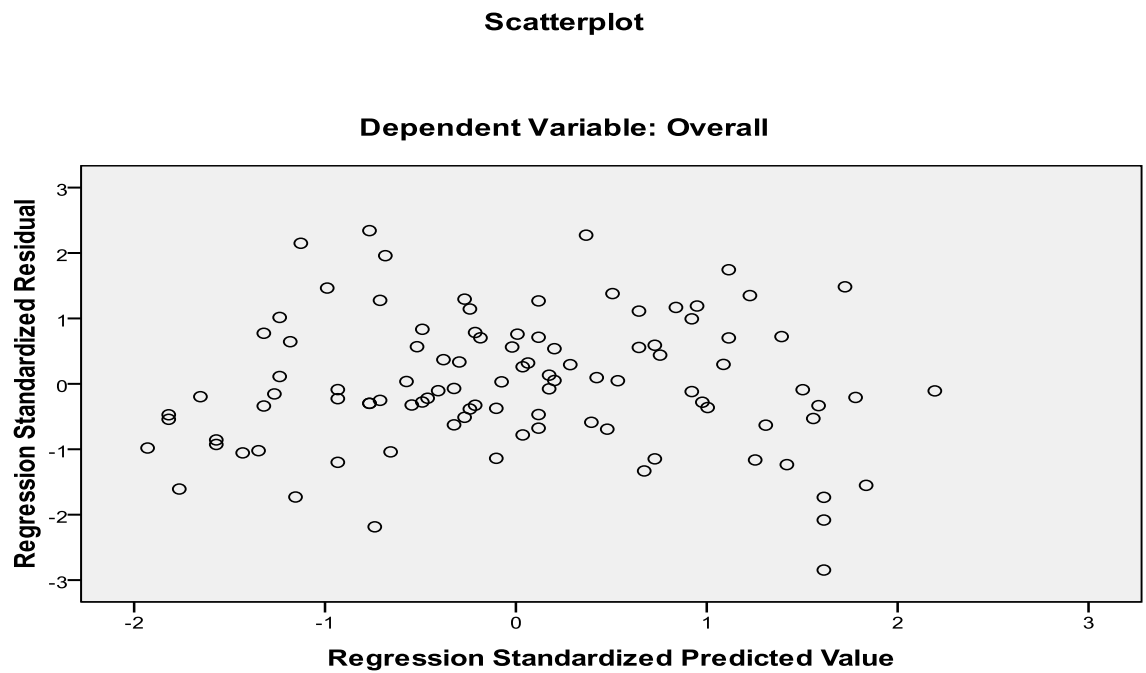


Figure 3. Scatterplot for significant variables predicting correlation between overall self-efficacy and FLA



The examination of the multiple linear regression analysis showed that the variable of ‘*Course-Efficacy*’ was a significant predictor of FLA for Turkish prospective ELT teachers because the  $r$  for the model was .54, which indicates an acceptable correlation between this independent variable and FLA. The  $R^2$  is .29. In addition, the analysis of the Beta ( $B=.54$ ), which contains the coefficients that indicate the magnitude of predictions for a variable; the course efficacy is a strong predictor in the model of increased FLA. This means that the more course efficacy increases, higher the FLA is. The analyses of Anova,  $F(1, 98) = 40.06$ ,  $P=.000$ ;  $P<.05$ , and Coefficients ( $t=6.330$ ;  $t > 2$ ) also confirmed that the model is a strong predictor of participants’ FLA (table 11).

Table 11: Relationship between Course-Efficacy and FLA

	R	R Square	Anova Sig.	F	Beta value	Coefficient t
Course Efficacy	.54	.29	.000	40.06	.54	6.330

\*  $P<.05$

Figure 4. Histograms for significant variables predicting correlation between Course-Efficacy and FLA

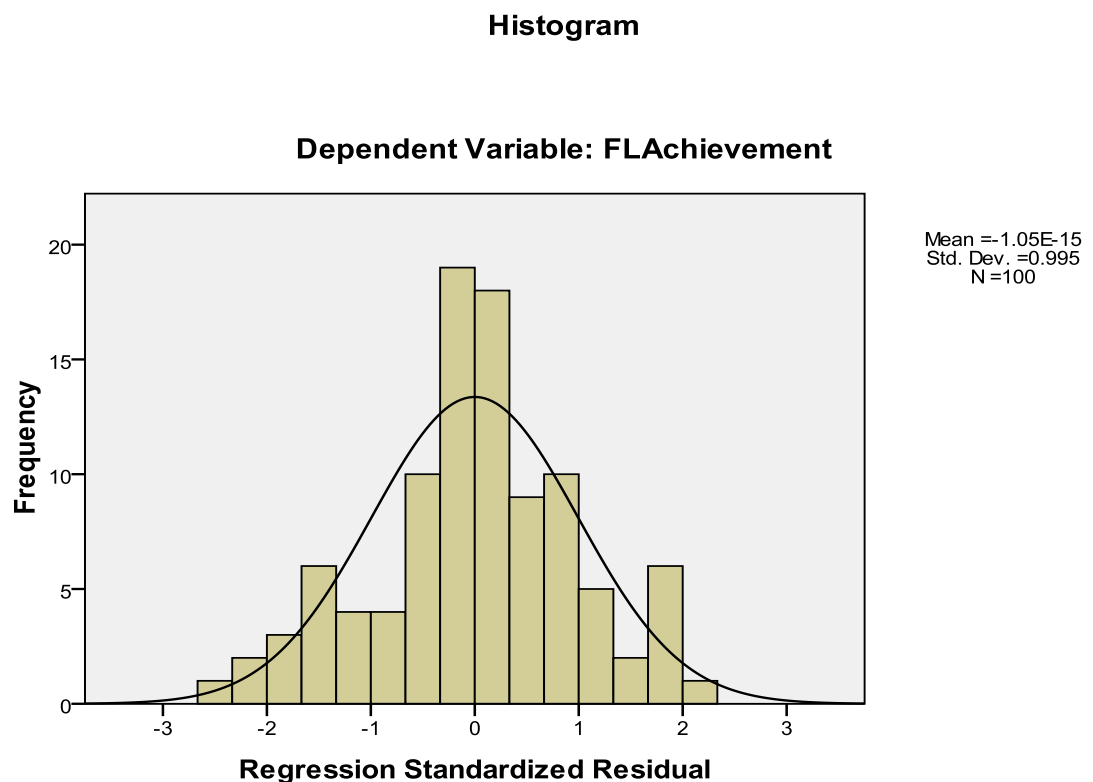




Figure 5. Normal probability plot for significant variables predicting correlation between Course-Efficacy and FLA

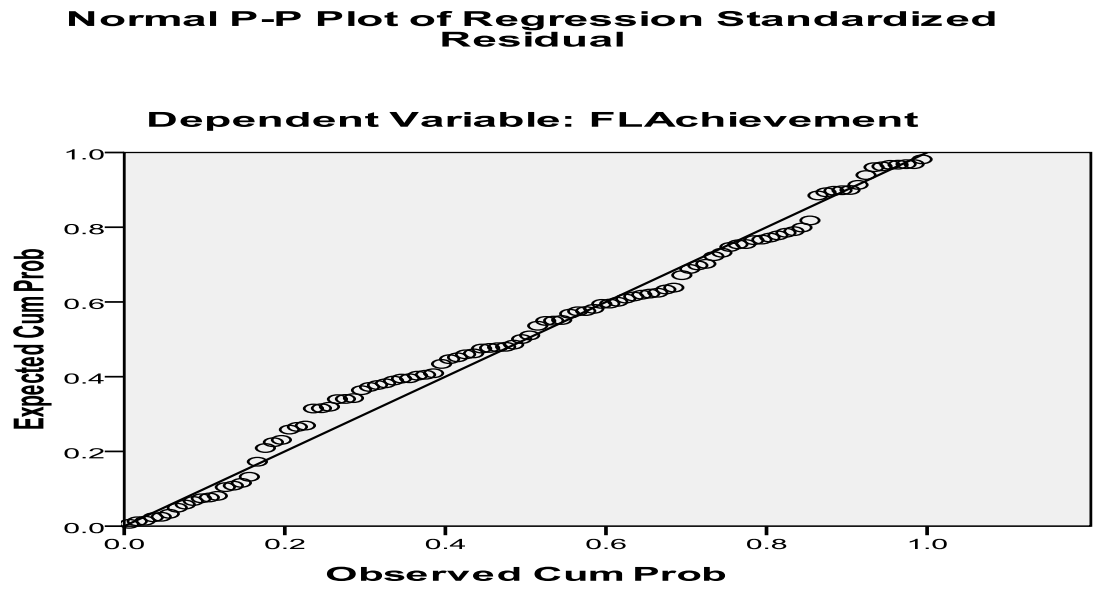
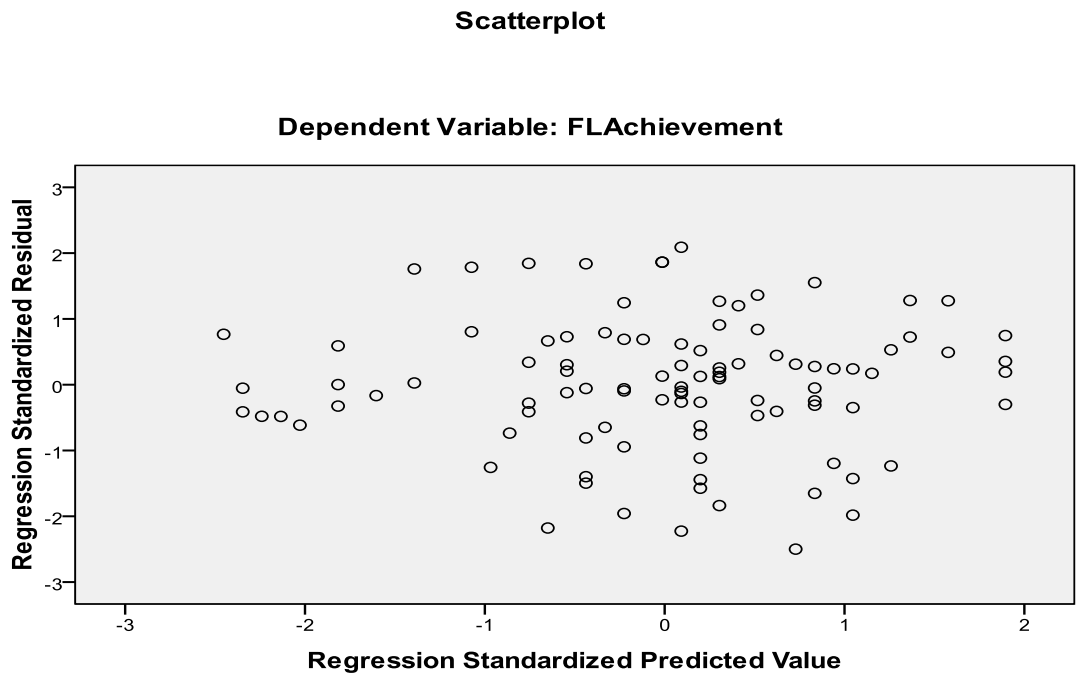


Figure 6. Scatterplot for significant variables predicting correlation between Course-Efficacy and FLA



The results of multiple regression analysis for the *Social-Efficacy* revealed that this independent variable was significant in determining the relationship between students' social efficacy and their FLA because the R was  $-.68$ , which indicates a high correlation between social efficacy and FLA. The  $R^2$  is  $.47$  and this follows that the model can approximately account for the 47% of the variability of FLA of ELT students (table 12). Besides, the examination of the Beta ( $B = -.68$ ), Anova,  $F(1, 98) = 86.441$ ,  $P = .000$ ;  $P < .05$ , and coefficients t value ( $t = -9.30$ ;  $t > 2$ ) confirmed that the social efficacy can be considered as an effective predictor in determining FLA of ELT freshman prospective teachers.

Table 12: Relationship between Social -Efficacy and FLA

	R	R Square	Anova Sig.	F	Beta value	Coefficient t
Social Efficacy	-.68	.47	.000	86.441	-.68	-9.300

\*\*  $P < .05$

Figure 7. Histograms for significant variables predicting correlation between Social -Efficacy and FLA

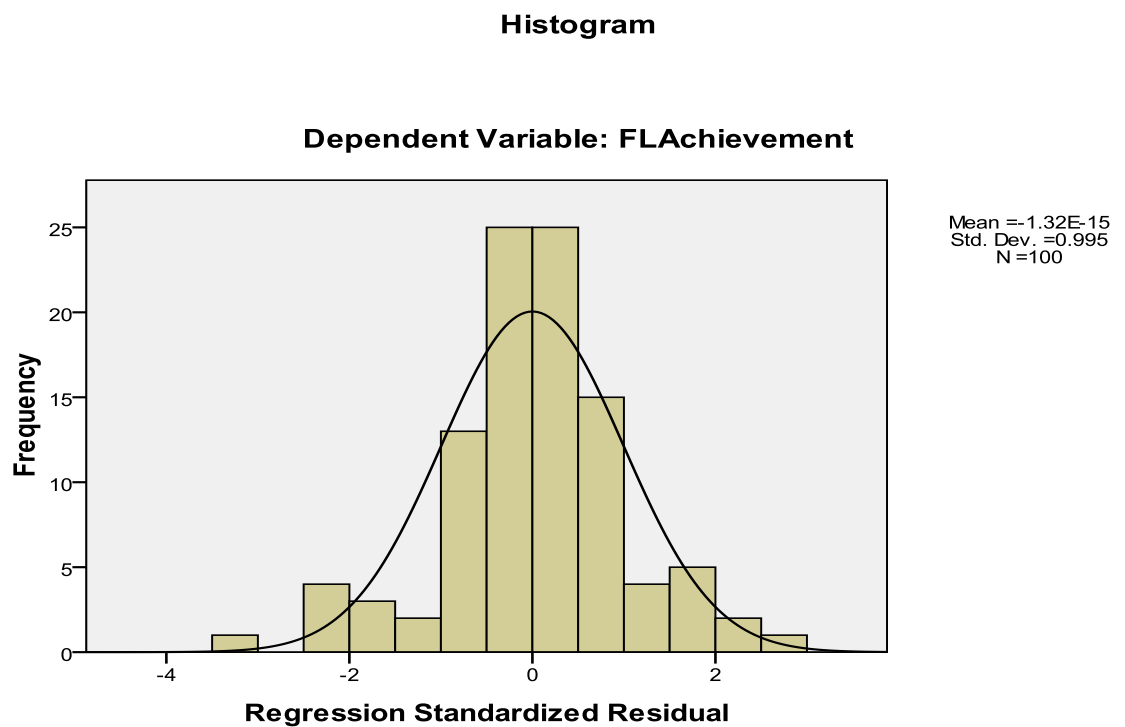


Figure 8. Normal probability plot for significant variables predicting correlation between Social -Efficacy and FLA

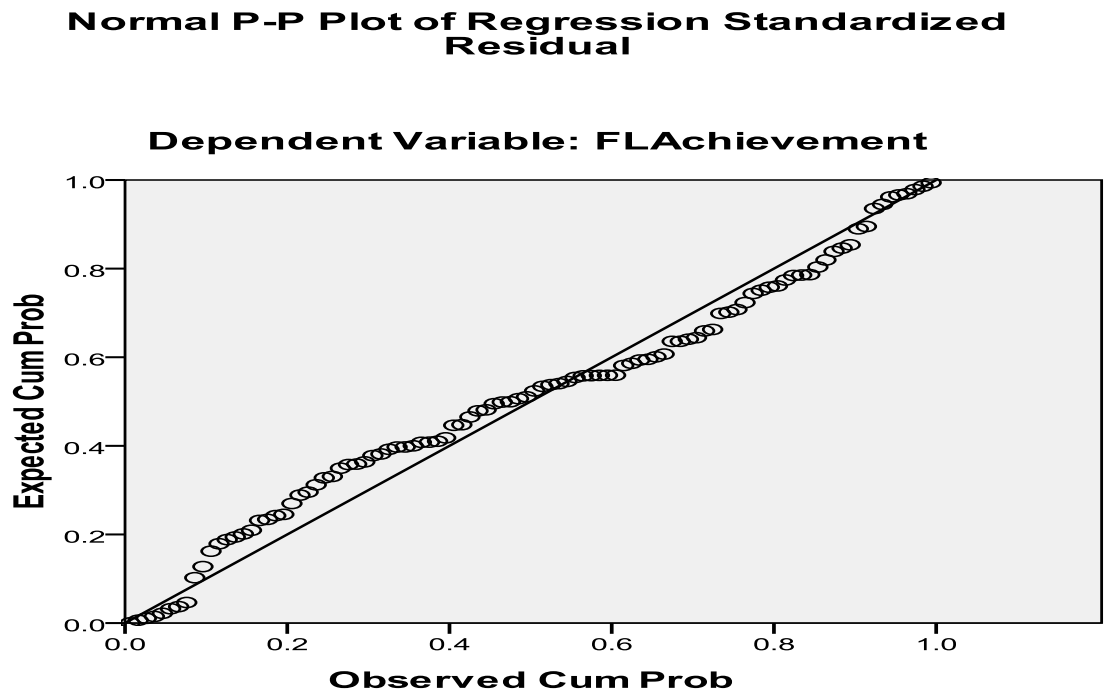
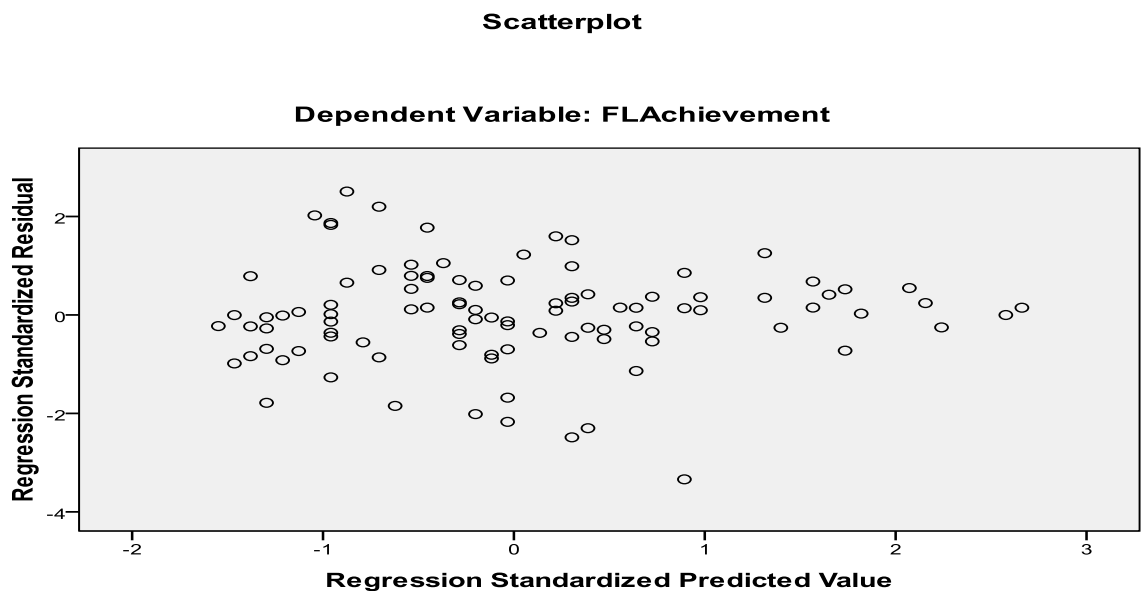


Figure 9. Scatterplot for significant variables predicting correlation between Social-Efficacy and FLA



A careful analysis of table 13 indicates that the results of multiple regression analysis showed that *Roommate-Efficacy* independent variable was a significant predictor in

determining students' FLA because the R was .57, which indicates a rather high correlation between *Roommate-Efficacy* variable and FLA. The R<sup>2</sup> is .33. Thus, the model explains 33% of the variability of prospective ELT teachers. Furthermore, the Beta, Anova and coefficients t-value for this model (B= -.57; F (1, 98) = 47.874, P=.000; P<.05; t=-6.91, respectively) confirmed that the *Roommate-Efficacy* variable is a strong factor in determining FLA of ELT teachers (Table 13).

Table 13: Relationship between Roommate-Efficacy and FLA

	R	R Square	Anova Sig.	F	Beta value	Coefficient t
Roommate Efficacy	.57	.33	.000	47.874	-.57	-6.920

\*\*P<.01

Figure 10. Histograms for significant variables predicting correlation between Roommate-Efficacy and FLA

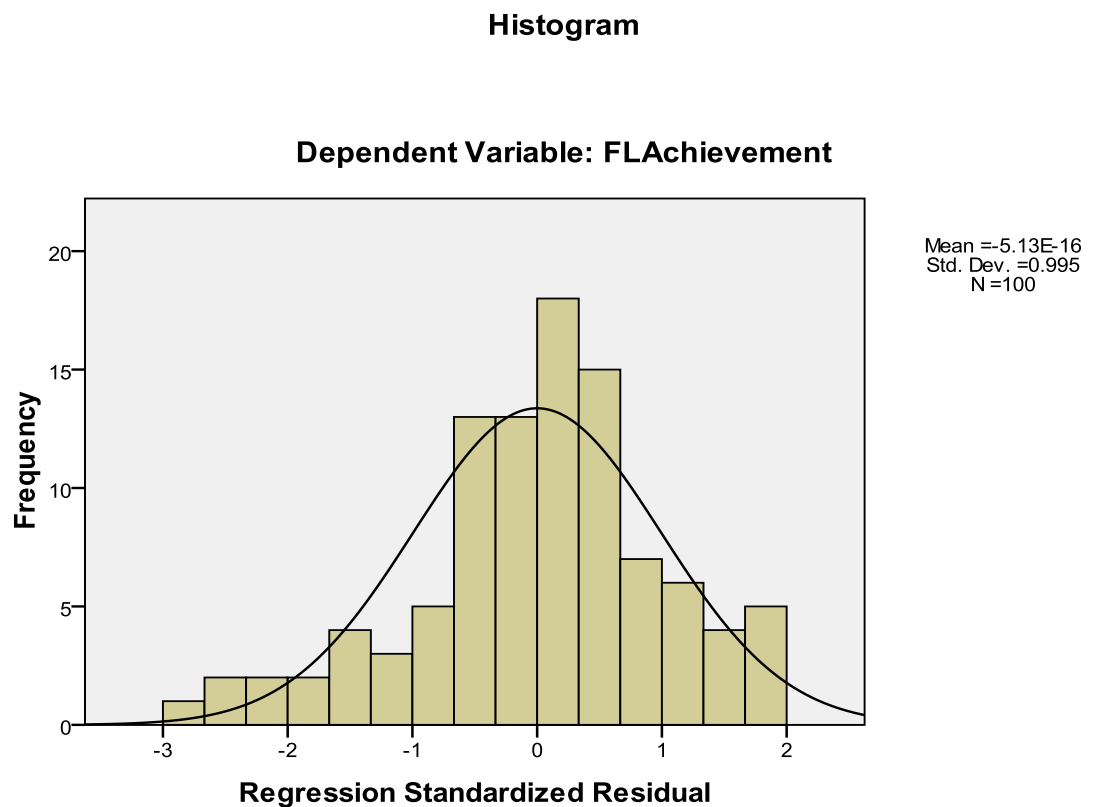


Figure 11. Normal probability plot for significant variables predicting correlation between Roommate-efficacy and FLA

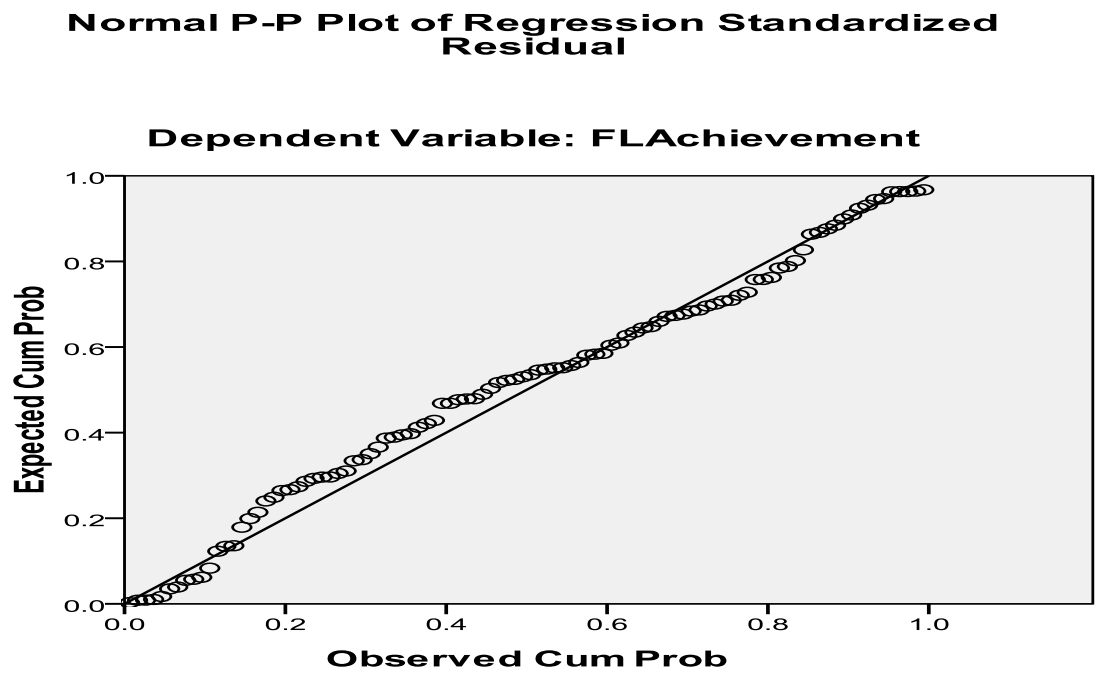
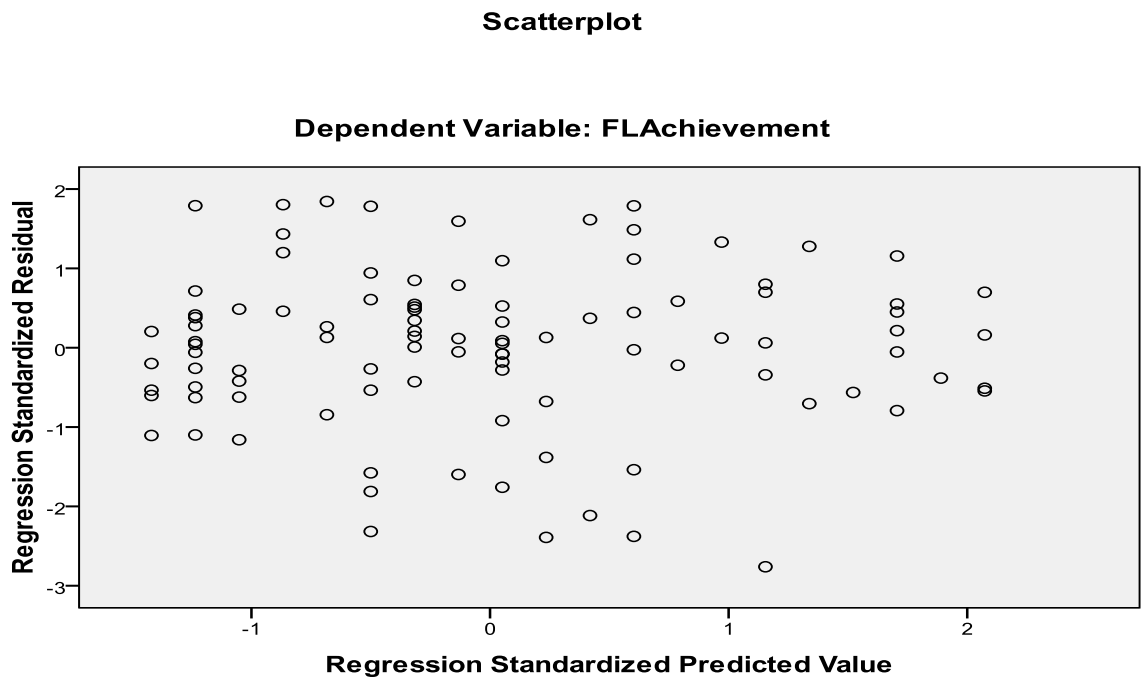


Figure 12. Scatterplot for significant variables predicting correlation between Roommate-efficacy and FLA



As to the relationship between *Overall Self-Efficacy* and FLA, the last multiple regression analysis was conducted to find out which of the three significant predictors from the previous analyses was the strongest predictor of FLA. In table 14, it is presented that the examination of the Beta for the three significant predictors revealed that the strongest predictor of SE of the students was social variable with the highest Beta of  $-.467$ . The second strongest predictor of FLA was course efficacy factor with a Beta of  $.346$ ; the third significant predictor was roommate efficacy with a Beta weight of  $-.185$ . The entire model has an R of  $.78$ , which is an acceptable, multiple regressions between the independent variables and FLA. The  $R^2$  is  $.61$ ; thus, 61% of the variability of FLA of the participants can be accounted for by the three independent variables treated in the study.

Table 14: Relationship between three Subscales of Self-Efficacy and FLA

	R	R Square	Anova Sig.	F	Beta Weights	coefficient t
	.78	.61	.000	50.577		
Course efficacy	-	-	-	-	.346	5.154
Social efficacy	-	-	-	-	-.467	-5.710
Roommate efficacy	-	-	-	-	-.185	-2.276

Figure 13. Histogram for significant variables between three Subscales of Self-Efficacy and FLA

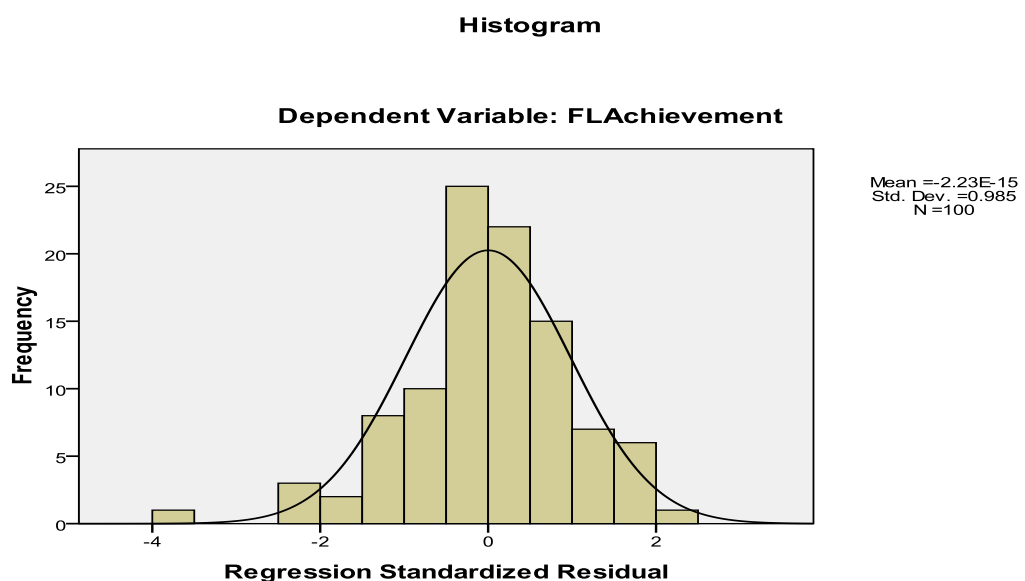


Figure 14. Normal probability plot for significant variables between three Subscales of Self-Efficacy and FLA

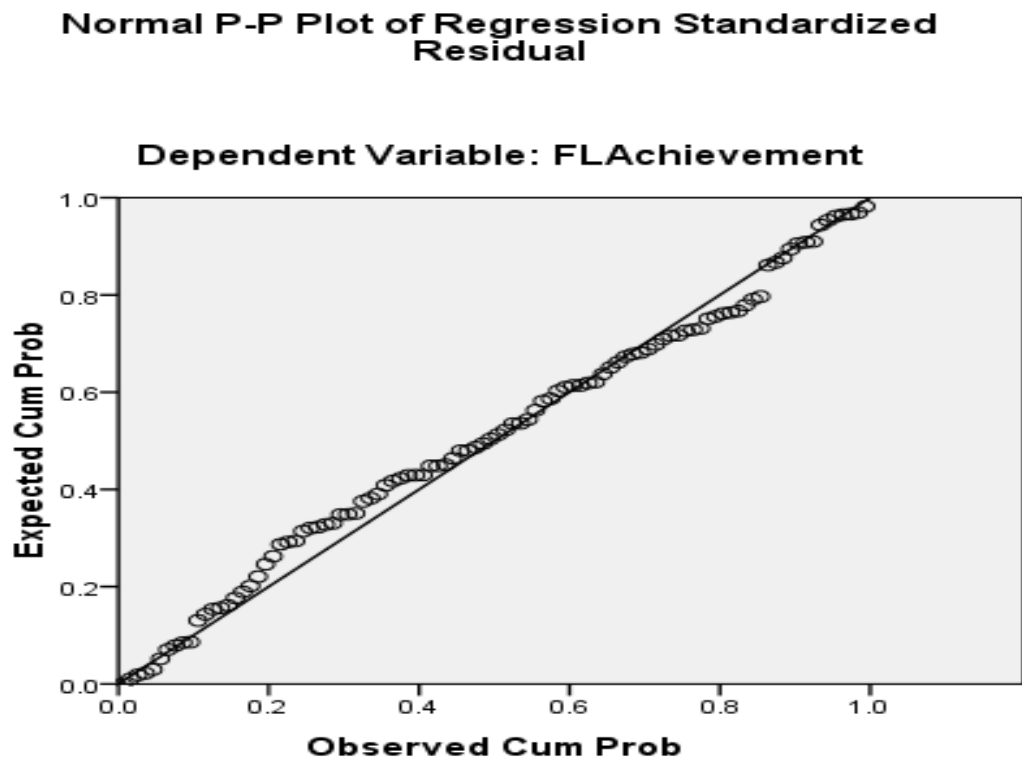
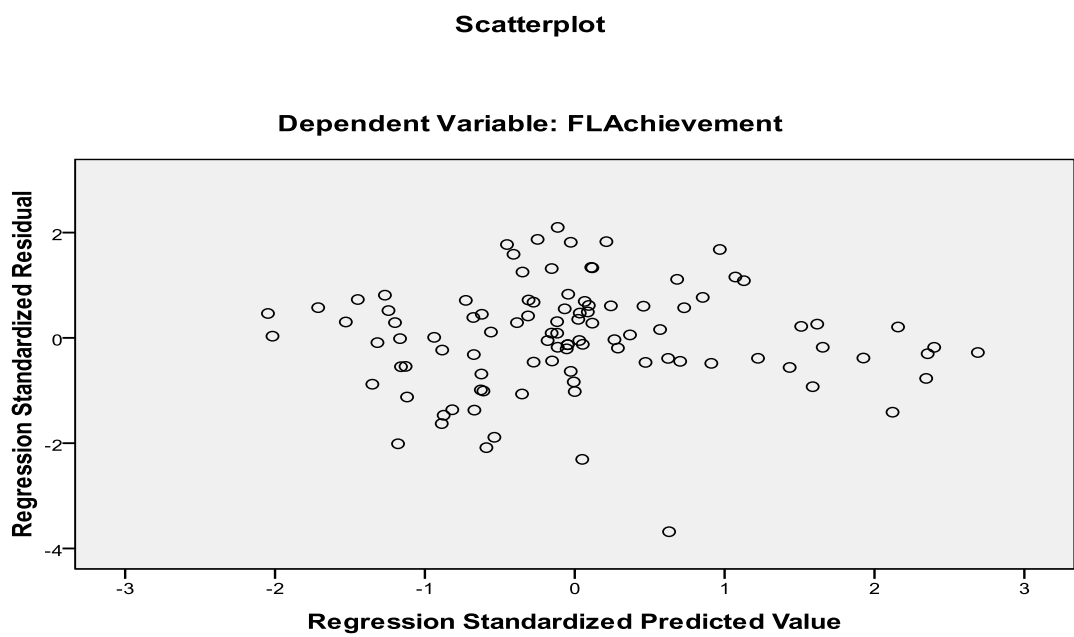


Figure 15. Scatterplot for significant variables between three Subscales of Self-Efficacy and FLA



### 4.3. RESULTS FOR RESEARCH QUESTION 2

Research question 2: Does academic self-efficacy have any significant role in foreign language achievement?

As for the second research question the results of *Pearson Correlation Analysis* revealed that there is a significant positive relationship between ASE and FLA,  $r(100) = .605$ ,  $P < 0.01$  (Table 15).

Table 15: Correlation between ASE and FLA

ASE	FLA		
	N	R	Sig. (2-tailed)
	100	.60**	0.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 4.4. RESULTS FOR RESEARCH QUESTION 3

Research question 3: How do problem solving and its components (Problem Solving Confidence, Approach-Avoidance Style and Personal Control) effect foreign language achievement?

The third research question asked for how the PSS and its three subscales effect on FLA. In order to answer this question investigator conducted a correlation coefficient analysis. The results, as expected, revealed that there was also a significant correlation coefficient between FLA and all subscales of PSS,  $r(100) = -.21$ ,  $P < 0.05$ . However, the reliability effect test (Cohen, 1988) showed that there was a low level of correlation coefficient ( $r = -.21$ ,  $p < .05$ ) between FLA and overall PSS (Table 16).

Table 16: Correlation between Overall PSS and FLA

Overall PSS	FLA		
	N	r	Sig. (2-tailed)
	100	-.21*	.029

\*. Correlation is significant at the 0.05 level (2-tailed).

To find out the Correlation Coefficient between PSC subscale of PSS and FLA, Pearson Correlation analysis was conducted and the results revealed that there is a significant



and positive correlation coefficient between PSC subcomponent of PSS and FLA of prospective ELT teachers,  $r(100) = .62$ ,  $P < 0.01$ . Table 17 shows the correlation coefficients calculated for the FLA and PSC dimension of PSS. Moreover, the results of reliability effect test, according to Cohen (1988), revealed a high level of correlation coefficient ( $r = .62$ ,  $p < 0.01$ ) between PSC and FLA. Cohen's (1988) correlation effect indexes for small, moderate and high levels of correlation coefficient between dependent and independent variables are .10 to .29, .30 to .49 and .50 to 1 respectively.

Table 17: Correlation between PSC and FLA

PSC	FLA		
	N	r	Sig. (2-tailed)
	100	0.62**	0.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The second correlation analysis was conducted to find out whether there is a correlation between FLA and AAS subscale of PSS. The results indicated that there is a statistically significant negative correlation coefficient between AAS subscale of PSS and FLA,  $r(100) = -.63$ ,  $P < 0.01$  (Table 18). Moreover, the reliability effect test, Cohen (1988), revealed that there is a high level of correlation coefficient ( $r = .63$ ,  $p < 0.01$ ) between the variables measured.

Table 18: Correlation between AAS and FLA

AAS	FLA		
	N	r	Sig. (2-tailed)
	100	-.63**	0.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

There was statistically significant correlation coefficient, as determined by Pearson Correlation analysis, between PSS and FLA in subcomponent of PC,  $r(100) = -.34$ ,  $P < 0.01$ . Unlike the PSC and AAS dimensions of PSS, there was a moderate level of correlation between PC and FLA ( $r = -.34$ ,  $p < 0.000$ ) as determined by Cohen's (1988) reliability effect test (Table 19).

Table 19: Correlation between PC and FLA

PC	FLA		
	N	r	Sig. (2-tailed)
	100	-.34**	0.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.5. RESULTS FOR RESEARCH QUESTION 4

##### **Is Gender a predictor in developing self-efficacy, academic self-efficacy and problem solving skills?**

The fourth research question investigates to see whether gender is a predictor for self-efficacy, academic self-efficacy and problem solving skills or not. To do so, researcher conducted Pearson Correlation Coefficient analysis. The results of correlation for gender as an independent variable and overall SE revealed that there was no significant relationship between them. The result of the correlation between Course-Efficacy subcomponent of SE and gender showed that there was a moderate positive significant relationship between them ( $r = .316$ ;  $p < .05$ ). Additionally, the findings showed no significant relation between two other subscales, Social and Roommate efficacy in relation to gender (Table 20).

Table 20: Correlation between gender and SE, ASE and PSS

Course-SE	Gender		
	Males		Females
	N		N
		Sig.(2tailed)	
	24	0.01	76
		r	
		.316	

Additionally, in overall analysis of ASE and gender, results showed that there was no significant correlation between them. It means that gender is not a potential predictor of ASE for prospective ELT teachers in this study. Finally, Pearson Correlation Coefficient analysis between PSS and its three subscales (PSC, AAS and PC) showed no significant relation between gender and overall PSS and its subscales. It means that gender was not a predictor for PSS and its subscales among prospective ELT teachers.

#### 4.6. RESULTS FOR RESEARCH QUESTION 5

##### Do High Successful ELT Prospective Teachers Differ From Unsuccessful Ones In Terms Of A) SE, B) ASE, And C) PSS?

An independent sample t-test was conducted in order to find out if there is any difference between high successful ELT prospective teachers and low unsuccessful ones in relation to their SE. The findings revealed that there was a significant difference between high group (N=17, M=90.64, SD=15.28) and low group (N=13, M=103.92, SD=17.01) regarding their overall SE,  $t(28) = -2.21$ ,  $p = 0.037$ ,  $p < 0.05$ . Contrary to our expectations, the highest mean scores were observed in low successful group. Low achievers had significantly higher mean scores in comparison to higher achievers. This means that SE tends to decrease as GPA increases (Table 21).

Table 21: High successful ELT prospective students differ from unsuccessful ones for SE

FLA		N	Mean	SD	t	Sig.
Overall	High	17	90.64	15.28	-2.21	0.037
	Low	13	103.92	17.01		

An independent sample t-test was also conducted in order to find out if there is any difference between high successful ELT prospective teachers and low unsuccessful ones in relation to their ASE. The result showed that there was a significant difference between high group (N=17, M=99, SD=14.02) and low group (N=13, M=79, SD=9.01) with regard to their overall ASE,  $t(28) = 4.73$ ,  $p = 0.000$ ,  $p < 0.05$ . This means that ASE does have a significant effect on FLA (Table 22).

Table 22: High successful ELT prospective students differ from unsuccessful ones for ASE

FLA		N	Mean	Std. Deviation	t	sig.
	High	17	99.00	14.02	4.73	0.000
Overall	Low	13	79.00	9.01		

As for the relationship between FLA and PSS, the findings of independent sample t-test showed no significant difference between high successful students and low successful ones ( $p = .144$ ,  $p > 0.05$ ).

#### 4.7. CHAPTER SUMMARY

This chapter presented the descriptive and inferential statistics of the data gathered from prospective ELT teachers. The results from the analysis of the data by Pearson Correlation Coefficient, Regression analysis and independent sample t-test for the five research questions were also presented. The findings revealed a significant relationship among self-efficacy and FLA. The data also showed that academic self-efficacy and FLA were positively correlated. Additionally, the results, as expected, revealed that there was also significant correlation coefficient between FLA and all subscales of PSS. The effectiveness of gender in predicting three independent variables of this study was investigated and explained. Finally, the difference between high and low successful students was measured. Chapter five provides a discussion and conclusions of the findings of the study. Also, the pedagogical implications of these results and suggestions for future research will be discussed.

## **CHAPTER 5**

### **DISCUSSION AND CONCLUSION**

#### **5.1. INTRODUCTION**

In this chapter I try to discuss step by step the research questions according to detail analysis of chapter 4 and with regard to the findings of previous studies. At the end of the discussion part the researcher will come up with conclusions, and recommendations and pedagogical implications for further investigations in foreign language learning.

#### **5.2. DISCUSSION FOR SELF-EFFICACY**

The multiple regression analysis between overall SE and FLA revealed a significant relationship between them. The result of analysis also revealed that there were significant relationships between dimensions of SE and FLA. This means that when self efficacy increases, the students' success increases, too. Bandura (1986) asserted that the stronger the self efficacy, the more likely the students select challenging tasks, persist at them and perform them successfully. The positive correlation between overall SE beliefs and FLA assert the fact that

“When students perceive they have competence in their knowledge, beliefs and feelings about their capabilities plus their expectation of success (Boekaerts, 1991) they will show improvement in the performance of the English language. Therefore when there is high self efficacy, it influences the academic persistence and this is necessary to maintain high academic achievement (Lent, Brown, & Larkin, 1984, 1986). It can be obtained from this statement that, the most important factor is the student's self-efficacy beliefs and this will lead to confidence and competence in doing the tasks of FLA (Mahyuddin et al., 2006, p. 68)”.

In this study as the students' SE increases, FLA increases, too. Other studies, as cited in Raofi et. al (2012), also examined the relationship between self-efficacy beliefs and performance as indicated by either course grades in the foreign language (Mahyuddin, et al., 2006; Mills, Pajares, & Herron 2007; Hsieh & Schallert 2008) or proficiency in a specific domain of the target language – reading (Mills, Pajares & Herron 2006; Mills, Pajares, & Herron 2007) listening (Rahimi and Abedini 2009; Mills, Pajares & Herron 2006; Magogwe & Oliver, 2007; Tilfarlioğlu & Ciftci 2011). Findings of these studies

were in agreement with the findings of the current study which indicated that self-efficacy strongly predicts FLA. Becker and Gable (2009), in a study which was looking for the relationship between self-efficacy and students GPA, found that there was a significant correlation between students' self-efficacy and their GPA.

### **5.2.1. Discussion for Course-Efficacy**

The data showed statistically a high significant positive relation ( $R = .54$ ) between Course-efficacy as one of the subcomponents of SE and FLA. Gore et al. (2006), as cited in Barry and Finney (2009), explored the relationships between the CSEI scores (total and subscale) and the scores from measures of college expectations, college performance, and college persistence. They found that Course Efficacy positively correlated with cumulative grade point average (GPA) and higher expectations for participation in library activities, for course learning, general reading and writing, and for scientific and quantitative activities. From their findings, it can be inferred that the higher students' course-efficacy level, the higher their FLA and, conversely, a lower level of course-efficacy correlates with a lower level of FLA among prospective ELT teachers.

Students who manage their time effectively, keep up to date with their school work, research a term paper, understand their textbook, do well on their exams, take good class notes, write course papers which are essential activities for a successful student oriented to have a good GPA and it will definitely have good effect on FLA. All of these activities, according to Schunk (1995), are the part of information processing which refers to the fact that perseverance learners with great capability of understanding the academic materials are likely to have high self-efficacy for learning those materials that consequently lead to gain high FLA.

The findings of the current study is convergent and almost correspond with the findings of Bandura and Schunk (1981), Bouffard-Bouchard (1990), Lent, Brown and Larkin (1984), Pajares (1996) and Schunk and Hanson (1985) which indicate that those who discover existing efficacy try harder to reach their goals, improve their knowledge as they make progress and see the learning as something which is not compulsory.

Students reach required motivation to do the schoolwork, concentrate on the materials that they are learning. Thus, the highly efficacious student is more likely to succeed and enthusiastically cooperates with the other students in doing schoolwork or projects and their success in school has positive effect of wanting to stay longer in an educational setting for ELT students.

Plucker, (1998) asserted that students with positive internal representations of education tend to value education, have confidence in their academic ability and perceive the educational process as positive and rewarding. This means that when learners gain high level of self-efficacy, more specifically in Course-efficacy, will be able to overcome the dread of doing class activities, group working activities and enthusiastically prove their FLA.

### **5.2.2. Discussion for Social-efficacy**

Another subcomponent of self-efficacy is social-efficacy which plays a vital role in student achievement. In the current study, social-efficacy ( $R = .68$ ) is positively significant in correlation to FLA. Hence, based on the values reported in the table 14, the highest Beta coefficient was observed for Social-Efficacy ( $B = -.467$ ). Therefore, it is a stronger predictor of FLA than the other subcomponents of self-efficacy for prospective ELT teachers. With draw back to the Bandura's explanation of *Social Learning Theory*, it can be inferred that much of human learning occurs in a social environment. So, by making new friends at college, getting a date with them, joining a student organization, trying to communicate with the university academic and support staff, talking to their professors/instructors, participating in class discussion, and finally asking professors or instructors a question in or outside of class students can create opportunity for themselves to learn how to be an autonomous learner, how to manage time, how to program and learn how to communicate with others in society and consequently gain high level of social efficacy.

All in all, with a high social efficacy learners are able to get interaction with society and education. The social self-efficacy subscale measures beliefs in learner's ability to regulate to college life both interpersonally and socially. Drawing upon the foregoing

results of the previous chapter, we can now claim that those with high level of social-efficacy showed higher degrees of success in FLA. The social learning theory emphasizes the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others (Bandura 1977). When the learners date with different sex or join in organization and get adequate feedback from them, they will inevitably be persuaded to get higher attainment in their schooling. In this case, Social-efficacy focuses on the learning that occurs within a social context, including such concepts as observational learning, imitation, and modeling.

According to DeWitz & Walsh (2002) students with higher college, social, and general self-efficacy had higher college satisfaction momentums. Again for Gore et al. (2006), as cited in Barry and Finney (2009), the Social Efficacy subscale positively correlated with most of the college expectations, but unlike the two other subscales, it positively correlated with expectations for using campus facilities and for joining university clubs, organizations, and service projects. Previous studies suggested that students' educational performance is related to their motivation to be socially responsible and their beliefs in how they relate to others socially (Bandura et al., 1996; Patrick et al., 1997). Perhaps "doing well" increases students' perceptions of their social self-efficacy through the power of peer feedback and teasing, especially in university communities.

Zeitlin-Ophir, Melitz, Miller, Podoshin and Mesh (2004) maintain that the way students manage to adjust and get in well with the university environment is of great importance. With regard to academic success, they believe that students must socialize with the university life as well as the study programs, but the research showed that students face with some challenges of integrating into a wholly new sociocultural environment. The findings of research also indicate the importance of how student satisfy with the facilities, services, student-faculty-teacher relationships provided by the university. What was mentioned earlier does indeed affect the students' academic accretion and consequently their success at school. For Esceles (1991) the purpose of students joining university activities is fulfillment of feelings and relationships. By persuading students to do so, university could provide social surroundings in which they put more effort on their academics. Therefore, student's effort to improve that fulfillment would help them to succeed throughout their studying. <http://www.ukessays.com/>



### 5.2.3. Discussion for Roommate-Efficacy

As seen in chapter four, higher correlation ( $R = .57$ ) for roommate efficacy shows that it is positively correlated with FLA and its lower Beta coefficient indicates that Roommate-efficacy is the third significant factor in predicting FLA as a dependent variable. Gore et al. (2006), as cited in Barry and Finney (2009), asserted that not surprisingly, *Roommate-Efficacy* positively correlated with expectations of establishing student acquaintances, but it also positively correlated with course learning and expectations for writing scores and for interacting with faculty.

In the end, it should be emphasized that the roommate self-efficacy subscale measured students' beliefs and their abilities to interact personally and interpersonally with college roommates. Learners can develop their self-efficacy via counseling and personality development. In this area, students learn how to divide their chores with others, get along with others whom live with, try to socialize with others and finally divide space in their residence.

In FLA for prospective ELT teachers, Roommate-efficacy is not more significant than the two subcomponents of SE. It means that freshman prospective ELT teachers are not more likely to interact with other students or their roommates and consequently their self-efficacy will form slightly. Students, through doing chores, learn how to cooperate in learning educational material; maybe they feel more comfortable in practicing FL with their peers or roommates than the others without any stress or fear of speaking, or by using each other's notes, sharing ideas in school projects. Therefore, they tend to be successful learners. For Mazereeuw (2010), one of the secrets of academic success, during the educational period, is roommate. Also, students' recognition is mostly affected by their roommates. Students tend to choose excellent people to live with whenever they have chances to pick roommates.

### 5.3. DISCUSSION FOR ACADEMIC SELF-EFFICACY

The second research question deals with the relationship between ASE and FLA. The scrutiny of the results revealed that there was a significant relationship between ASE

and FLA. This proves the idea that student's ASE has an effect on their GPA and of course their FLA. According to the findings of prominent researchers such as Pajares (1996) and Pintrich & Schunk, (2002), academic self-efficacy has been linked to a diversity of achievement-related outcomes, including GPA, standardized test scores, persistence on difficult tasks, and enrolment in challenging courses. And the link between academic self-efficacy and academic performance can be considered as "reasonably secured", to borrow Pajares's (1996, p.563) words, if findings across different age groups and academic subjects tend to be robust.

In an experimental study, Bong (1997) evaluated students ASE in six school subjects English, Spanish, U.S. History, algebra, geometry, and chemistry and found that "the results simply provided an empirical justification for efficacy researchers to develop and use academic self-efficacy measures at various levels of specificity that correspond to the performance of interest" (p. 705).

Lorsbach and Jinks (1999) and Schunk (1991) state that academic self-efficacy indicates an individual's confidence to execute academic tasks successfully at selected level drawing upon his or her abilities, attitudes, and previous experiences. (Pajares (1996) and Schunk (1991) believe that individuals with high academic self-efficacy tend to approach difficult tasks and activities while learners with low academic self-efficacy tend to give up on a learning process when early efforts do not result in perceived or actual success (Schunk, 1984). Similarly Lorsbach & Jinks (1999) argue that low academic self-efficacy can result in less academic engagement, which could give rise to lower success, further decrease in academic self-efficacy.

There are studies that directly and indirectly support the findings of this research. Studies on the subject reported that academic self-efficacy promote academic achievement directly by increasing academic aspirations and pro-social behaviour (Bandura, Caprara, Barbaranelli, Pastorelli, 1996). They have also demonstrated that students whose self-efficacy is stronger and more accurate in their mathematics computation, show greater persistence on difficult items than do students with low self-efficacy (Collins, 1982).

This investigation is convergent with a study done by Zajacova Lynch and Espenshade (2005) who examined the relative importance of self-efficacy and stress in predicting academic outcomes. Their study revealed that academic self-efficacy has a strong positive effect on freshman grades and credits, which is consistent with previous research (Brown et al., 1989; Lent et al., 1984, 1986, 1987). For prospective ELT teachers academic self-efficacy is a strong predictor of GPA. Students who are more active in class, asking or challenging within or outside class with their professors are more likely to be a successful foreign language learner.

For prospective freshman ELT teachers with higher GPA, scores associated with higher levels of academic self-efficacy tends to have higher level of FLA. Thus, having high standards for one's achievement is significantly associated with increased confidence in one's capabilities to master academic tasks. These findings supported the study done by Lent et al., (1984, 1986, and 1997) who believe that when self efficacy is high, it influences the academic persistence and this consequently is necessary to maintain high academic achievement. Additionally, Zimmerman, Bandura, and Martinez-Pons (1992) stated academic self efficacy influenced achievement directly as well as indirectly raising students' grades.

A study conducted by Gore (2006) examined the extent to which academic self-efficacy determines college student outcomes. Results suggest that "academic self-efficacy beliefs predict college outcomes but that this relationship is dependent on when efficacy beliefs are measured, the types of efficacy beliefs measured, and the nature of the criteria used" (p.92). Gore (2006) also asserted that:

"...when the student's academic self efficacy was measured at the beginning of the student's first semester, the academic self-efficacy beliefs were relatively weak prediction of academic performance. However, when academic self-efficacy was measured at the end of the student's of first semester, the scores were much stronger predictors of academic performance" (p.109). Interestingly, "student's academic efficacy beliefs are likely to be more accurate to the extent to which the students have experience in the academic area" (Gore 2006 p.110). It means that, students who have more experience with academia, academic self-efficacy scores are stronger predictors

of academic success. The results from the present study were also consistent with Gore's (2006) conclusion that students with more experience in the "academic arena" should be expected to have higher levels of academic self-efficacy than less experienced students and they suggested that "academic self-efficacy beliefs can be used to predict college students' academic performance and persistence". Additionally, Bandura (1997) found that level of self-efficacy was influenced by past successes, as cited by Whorton S.S. (2009).

#### **5.4. DISCUSSION FOR PROBLEM SOLVING SKILLS AND ITS THREE SUBSCALES**

*How do problem solving and its components (Problem Solving Confidence, Approach-Avoidance Style and Personal Control) affect foreign language achievement?*

One of the other facets of this study was to determine if there is a relationship between Problem Solving Skills (problem solving confidence (PSC), approach-avoidance style (AAS), and/or personal control (PC)) and FLA among prospective ELT teachers. In this section the study and its findings will be discussed in details to provide answers to our research question which were the objective of the present study.

The results, as expected, revealed that there was a significant correlation coefficient between FLA and all subscales of PSS. Also, Pearson Correlation analysis was conducted to find out the Correlation Coefficient between PSC subscale of PSS and FLA, and the results revealed that there is a significant and positive correlation coefficient between this subcomponent and FLA of prospective ELT teachers. Additionally, the result of correlation analysis between FLA and AAS subscale of PSS indicated that there is statistically significant negative correlation coefficient between them and also, there was statistically significant correlation coefficient, as determined by Pearson Correlation analysis, between PSS and FLA in subcomponent of PC.

The findings of the study showed that there was a significant positive correlation between FLA and PSS in all three subcomponents. This means that the PSS positively and significantly affects FLA. Considering the problem solving confidence (PSC), it can

be concluded that students who are able to think up creative and effective alternatives to solve problems, have confidence in handling problems that may arise, and trust their abilities to solve new and difficult problems do better in FLA (Table 2). Heppner & Lee (2002) asserted that “those who have confidence in their problem-solving abilities tend to focus actively on a problem and attempt to resolve the cause of the problem; they assume the responsibility for personal problems, and invest their efforts in approaching, rather than in avoiding, personal problems” as cited by Fisher (2009, p. 33).

Other factors also can affect students’ PSS. Westwood (2004) asserted that “...teaching methods and materials must be selected carefully to suit the types of learning involved in specific lessons, and to accommodate the learning characteristics of the students. Many learning problems are prevented or minimized by matching teaching methods and lesson content to learners’ current aptitude and prior experience (p.10).”

With regard to AAS and FLA, the results indicated that there was also a significant negative relationship between the variables. That is, the more learners are involved in thinking as many possible and successful ways to solve problems encountered during learning process, the more successful they are in learning a foreign language. In contrast, learners who easily give up thinking up alternative solutions to a problem when they fail to solve the problem in their attempt and do not consistently examine their own feelings to find out what is going on in a problem situation, they show weaker performance in FLA in comparison to other students who try their best to approach a problem creatively and enthusiastically.

As for the third subcomponent of PSS, there was a moderate negative significant correlation between PC and FLA. This means that the ability to make sound judgments about the problems, taking time to deal with the problems and controlling emotions in case of failing to solve the problem would certainly enhance learners’ personal control and subsequently contribute to their ultimate achievement in foreign language learning. Finally, the results also revealed that although all three subcomponents of PSS significantly affect FLA, there was a strong correlation between the PSC, AAS and FLA. Therefore, it can be concluded that these subcomponents are the best predictors of prospective ELT teachers’ achievements in language learning.

The findings of this study are convergent with the findings of Salami and Aremu (2006), who investigated the relationship between problem solving ability and study behavior among school going adolescent. They found that total problem-solving ability was significantly predictive of study behavior of the secondary school students. Heppner and Krauskopf (1987), as cited by Salami and Aremu (2006), believe that “effective problem-solving implies an ability to plan, organize, and recognize appropriate habits, attitudes and behaviors crucial to adaptive problem-solving action” (p.139).

Noojin and Wallander (1997) studied the adjustment of mothers of children with physical disabilities and found a positive correlation between better psychological adjustment and

- (1) high levels of confidence in their problem-solving ability,
- (2) a tendency to approach rather than to avoid problems, and
- (3) a sense of being in control of their emotions, and behavior during problem-solving.

Mothers in their study who reported the highest levels of stress also revealed a tendency to avoid problems and to feel out of control of their emotions and behavior during problem solving, as cited by Fisher (2009, p.34).

## **5.5. DISCUSSION FOR QUESTION FOUR**

*Is Gender a predictor in developing self-efficacy, academic self-efficacy and problem solving skills?*

The findings of this study revealed that gender was not a predictor of ELT prospective teacher’s self-efficacy. Hampton and Mason (2002) in a study examined the impact of gender, learning disability (LD) status, and sources of efficacy on self-efficacy beliefs and academic achievement in the concept of Bandura’s self-efficacy theory. They found that gender did not have direct or indirect influences on self-efficacy.

The Pearson Correlation Coefficient revealed no significant main effects or interaction effects of gender on PSS. In comparison with the results of others studies, the finding of this study for demographic self-effect of efficacy on FLA are contrary to previous findings of demographic differences between males and females total scores on the self-efficacy measure (Zhang and Manon, 2000; Wigfield, Eccles & Pintrich, 1996). In the current study GPAs are a measure of success by non-Native prospective freshman ELT teachers, and gender may not be an accurate measure of college student success.

Some researchers (Anderson & Betz, 2001; Lent, Lopez, et al., 1996; Usher & Pajares, (2006) have found gender differences in the sources of self-efficacy. They have reported that among middle school, high school, and college students, women report stronger vicarious experiences and social persuasions than do men. Others, however, have failed to find significant gender differences in the sources (Lent et al., 1991; Matsui et al., 1990) as cited by Britner and Pajares (2006). For this study, only the course efficacy subscale of SE has a moderate correlation coefficient with gender and is the moderate predictor of FLA for prospective ELT teachers. The other subscales like social and roommate efficacy had no significant correlation with gender.

Additionally, as reflected from research findings in chapter 4, it could be seen that there was no significant correlation between ASE and gender. It means that gender is not a predictor of ASE for prospective ELT teachers in this study, but contrary to the findings of this study, there are some studies indicating that there is a strong correlation between the two variables, while others still arguing the opposite. Therefore, further research is demanded to demonstrate a clear cut understanding between the two constructs. Finally, Pearson Correlation Coefficient analysis between PSS and its three subscales (PSC, AAS and PC) showed no significant relation between gender and overall PSS and its subscales as well as the ASE. Therefore, gender is not predictor of PSS and its subscales among prospective ELT teachers.

## 5.6. DISCUSSION FOR QUESTION FIVE

*Do high successful ELT prospective teachers differ from unsuccessful ones in terms of a) SE, b) ASE, and c) PSS?*

An independent sample t-test was conducted in order to find out if there is any difference between high successful ELT prospective teachers and low unsuccessful ones in relation to their SE. The findings revealed that there was a negative significant relationship between high group (N=17, M=90.64, SD=15.28) and low group (N=13, M=103.92, SD=17.01) regarding their overall SE,  $t(28) = -2.21$ ,  $p = 0.037$ ,  $p < 0.05$ . Contrary to our expectations, the highest mean scores were observed in low successful group. This means that SE has nothing to do with GPA in low group and that their success in FLA maybe attributed to other factors such as self-confidence, personality factors and their perseverance to handle tasks despite their low SE.

An independent sample t-test was also conducted in order to find out if there is any difference between high successful ELT prospective teachers and low unsuccessful ones in relation to their ASE. The result showed that there was a positive significant relation between high group (N=17, M=99, SD=14.02) and low group (N=13, M=79, SD=9.01) with regard to their overall ASE,  $t(28) = 4.73$ ,  $p = 0.000$ ,  $p < 0.05$ . This means that ASE does have significant effect on FLA.

Hsieh, Sullivan, & Guerra (2007) studied on Self-Efficacy and Goal Orientation of college students. They found that:

“... for students to be successful at the university, there needs to be some history of positive experiences and academic success. Unsuccessful students in this study, on the other hand, would be students identified as at risk of dropping out after one semester of underachievement based on a low GPA. Thus, it may be expected that self-efficacy and learning goals for these groups of students would be different” (p.19).



As for the relationship between FLA and PSS, the findings of independent sample t-test showed no significant difference between high successful students and low successful ones ( $p = .144$ ,  $p > 0.05$ ).

## 5.7. CONCLUSION

It can be concluded from the findings of this study there is a statistically significant relationship among self-efficacy, academic self-efficacy, problem solving skills and foreign language achievement of the prospective ELT teachers. Surprisingly, in contrary to the findings of other studies, the result of this study indicated gender was not a predictor of ASE, PSS and SE except for one dimension of self-efficacy (course-efficacy). Also, there was no significant difference between high successful students and low successful ones. Therefore, one can conclude that there is a significantly positive relationship between language learning and learner's self-efficacy with considering its three subcomponents among foreign language learners. Also, it can be inferred that there is a link between self-efficacy and learning outcomes as Bandura (1997), Pajares (1996) and Schunk (1995) stated. The findings of other studies (Mahyuddin, et al., 2006; Hsieh & Schallert 2008, Mills, Pajares & Herron 2006, 2007; Rahimi and Abedini 2009; Tilfarlioğlu & Ciftci 2011) also indicate that self-efficacy strongly predicts performance. As student's self efficacy raise helps to raise the function of learning. Comparatively, students who have low self-efficacy, their achievement of outcomes will be low.

A self efficacious student is one who awakens his or her cognition in understanding the learning material, motivates on them, challenges with the professors on scientific issues, asks question, and persists in learning task. Conversely, students with weak self-belief in their self-efficacy are always timid and try to evade from the difficulties of in different situations have low educational aspirations and weak social communication. Adverse outcomes or even failing will make them frustrate from learning.

In conclusion, according to the findings of previous researches, there has been a link between the academic self-efficacy and learner's FLA (Lent et al., 1997; Lent et al., 1984 and 1986) and, as findings of this study revealed, the ELT students' academic self-

efficacy is convergent with their GPA. Therefore, it is essential for educational officials and curriculum designers to pay more attention to planning appropriate programs depending on learner's cognitive and psychological demands. This will serve as an important factor in drawing learner's attention to course materials. As stated earlier, one of the significant factors which are closely related to academic self-efficacy is the achievement motivation of the learners that creates extra power to achieve their academic objectives. Due to high academic self-efficacy, learners can concentrate enthusiastically on their teacher. Moreover, the perseverance will be enjoyable and they will eagerly do their homework, feel good because of having intimate relationship with their teachers and do their best to satisfy them by understanding and benefiting from the learning activities and materials. Last but not the least, social accomplishments and parental satisfaction become important for them.

All mentioned above confirm the correlation between ASE and FLA to improve and promote learner's performance level in educational environments. They also emphasize on the curriculum designers, educational councilors and parents to take learner's personality components along with their other academic capabilities into account. Besides, the quality of self-efficacy differs in different stages of growth and development. Therefore, familiarity of educational officials with the fundamentals of developmental psychology in ASE domain is necessary and predicting it is considered as one of the basic principles of educational planning.

The major conclusion drawn from the findings of this study is developing ELT students' problem solving skills which is linked to the increment of their success. As the results showed there was a correlation between PSS and its subscales and the results of other studies supports the fact that PSS is linked with the students' performance. Vygotsky (1978) believes that all learners have two levels of their thinking development: first actual development level and second potential development level. The first level refers to the thinking level at which the children can solve problems by themselves, while the Zone of Proximal Development is "the distance between the actual development as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). As mentioned earlier in literature review, developing student's

critical thinking prepares them to solve their school problems or real life, thus teaching them to be a good thinker may help them to enhance their achievements. They will be ready to encounter with any problem, eagerly challenge on the scientific issues. Thus, there should be an encouragement for the teachers, administrators, and policy makers to introduce problem solving skills to teacher training programs and prepare them for future implications.

## **5.8. RECOMMENDATIONS AND PEDAGOGICAL IMPLICATIONS**

With regard to the findings of this study, it is suggested that school counselors, teachers and other educational programmers should pay more attention to students' study habits, materials, methods, techniques and then devise a plan to train them on how to use study techniques especially teach them how to be a good critical thinker. This is very important for students to solve problems they may face in their future work, and professional lives. As Taylor (2001) indicates, learners should be taught how to think rather than what to think.

As self-efficacy affects learning outcomes and good performance, then educational efforts, teacher practices and teaching strategies should focus on enhancing self efficacy to increase students' confidence, creativity and consequently learning outcomes. A self-regulatory process is one of the effects of self efficacy which should be utilized in making decisions automatic and be exercised unconsciously. Teachers should train students to instill self-efficacy and self-regulatory in their learning process so that they will become habits. When they become habits of thinking, these beliefs in personal competence will serve them throughout their professional lives.

Having educational counselors is very important for each school or department. They can spot problems in weak students and then help them to prove themselves. All of these functions should also be incorporated into the school curriculum in order to expose students to them as early as possible. Holding scientific conventions or conferences and encouraging students to attend in it helps them overcome their fear of discussion. The concept of Problem-solving is a model of learning involving cooperation between student and student, teachers and student, utilizing the students'

own experience as educational resources. One suggestion is that when teachers involve students in group activities, passive students should be placed with active ones. Thus, instructors can help students to do projects cooperatively, use peer's role to solve the problems and let them approach the problems and support emotionally in trial and error.

Teachers are expected to provide students with challenging tasks and more meaningful problem solving activities to encourage learner to recognize the problem, think out for solution, to increase motivation and their efforts to do the task. During these activities learners will learn how to decide, create a goal, find alternatives, and chose the best one.

### **5.9. SUGGESTIONS FOR FUTURE RESEARCH**

The findings of the present study indicate some suggestions for further research. Because of the limitations of questionnaires, it seems essential to conduct qualitative research or an empirical research with a target to investigate the construct of self-efficacy, academic self-efficacy and problem solving skills to see the more deeply effects among learners.

Since the studies investigated the variables in the short term period, it is necessary to investigate them over long-term periods with a large sample in different universities or colleges. Furthermore, more research is required to find the casual relationships between self-efficacy and especially with its three subscales with other variables rather than just establishing a simple relationship. Finally, it seems necessary to examine PSS and its three subscales with the interaction of learning style, personality types, and cultural and social variables.

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**APPENDIX A**

**Dear students,**

This form of Self-Efficacy Inventory is for ELT students. You will find statements about how confident you are. Please think about yourself as foreign language student. For each statement below, **circle** the number that best represents your confidence. (0, 1, 2, 3, 4, 5, 6, 7 or 8).

0. Totally unconfident	5. Somewhat confident
1. Very unconfident	6. Confident
2. Unconfident	7. Very confident
3. Somewhat unconfident	8. Totally confident
4. Undecided	

Answer in terms of how well the statement describes you. Do not answer how you think you should be, or what other people do. There is no right or wrong answers to these statements. Work as quickly as you can without being careless. This usually takes about 20-25 minutes to complete. If you have any questions, let the teacher know immediately. **Circle** the option that describes you most.

- 1. Make new friends at college.....0 1 2 3 4 5 6 7 8
- 2. Talk to your professors/instructors.....0 1 2 3 4 5 6 7 8
- 3. Take good class notes.....0 1 2 3 4 5 6 7 8
- 4. Divide chores with others you live with.....0 1 2 3 4 5 6 7 8
- 5. Research a term paper.....0 1 2 3 4 5 6 7 8
- 6. Understand your textbook..... 0 1 2 3 4 5 6 7 8
- 7. Get a date when you want one..... 0 1 2 3 4 5 6 7 8
- 8. Ask a professor or instructor a question outside of class...0 1 2 3 4 5 6 7 8
- 9. Get along with others you live with.....0 1 2 3 4 5 6 7 8
- 10. Write a course paper.....0 1 2 3 4 5 6 7 8
- 11. Socialize with others you live with.....0 1 2 3 4 5 6 7 8
- 12. Do well on your exam.....0 1 2 3 4 5 6 7 8
- 13. Talk with school academic and support staff.....0 1 2 3 4 5 6 7 8
- 14. Manage your time effectively.....0 1 2 3 4 5 6 7 8
- 15. Join a student organization.....0 1 2 3 4 5 6 7 8
- 16. Ask a question in class.....0 1 2 3 4 5 6 7 8
- 17. Divide space in your residence (if applicable).....0 1 2 3 4 5 6 7 8
- 18. Participate in class discussion.....0 1 2 3 4 5 6 7 8
- 19. Keep up to date with your school work.....0 1 2 3 4 5 6 7 8



**APPENDX B**

Academic Self-Efficacy Questionnaire

Direction: How much confidence you have about doing each of the behaviors listed below?

For each statement below, **circle** the letter that best represents your confidence.



- | <b>LOT</b>     | <b>LITTLE</b> |   |
|----------------|---------------|---|
| A B C D E..... |               | 1. Taking well-organized notes during a lecture.                              |
| A B C D E..... |               | 2. Practicing in a class discussion.  |
| A B C D E..... |               | 3. Answering a question in a large class.                                     |
| A B C D E..... |               | 4. Answering a question in a small class.                                     |
| A B C D E..... |               | 5. Taking “objective” test (multiple choice, T-F, matching).                  |
| A B C D E..... |               | 6. Taking essay tests.  |
| A B C D E..... |               | 7. Writing a high quality term paper.   |
| A B C D E..... |               | 8. Listening carefully during lecture on a difficult topic.                   |
| A B C D E..... |               | 9. Tutoring another student.  |
| A B C D E..... |               | 10. Explaining a concept to another student.                                  |
| A B C D E..... |               | 11. Asking a professor in the class to review a concept you don’t understand. |
| A B C D E..... |               | 12. Earning good mark in most courses.  |
| A B C D E..... |               | 13. Studying enough to understand content thoroughly.                         |
| A B C D E..... |               | 14. Running for student government office.                                    |
| A B C D E..... |               | 15. Participating in extracurricular events (sport, clubs).                   |
| A B C D E..... |               | 16. Making professor respect you.   |
| A B C D E..... |               | 17. Attending class regularly.  |
| A B C D E..... |               | 18. Attending class consistently in dull courses.                             |
| A B C D E..... |               | 19. Making a professor think you ‘re paying attention in class.               |
| A B C D E..... |               | 20. Understanding most ideas you read in your test.                           |
| A B C D E..... |               | 21. Understanding most ideas presenting in class.                             |
| A B C D E..... |               | 22. Performing simple math computation.                                       |
| A B C D E..... |               | 23. Using a computer.   |
| A B C D E..... |               | 24. Mastering most content in a math course.                                  |
| A B C D E..... |               | 25. Taking to a professor privately to get to know him or her.                |
| A B C D E..... |               | 26. Relating course content to material in other courses.                     |
| A B C D E..... |               | 27. Challenging a professor’s opinion in class.                               |
| A B C D E..... |               | 28. Applying lecture content to a laboratory session.                         |
| A B C D E..... |               | 29. Making good use of the library.   |
| A B C D E..... |               | 30. Getting good grades.  |
| A B C D E..... |               | 31. Spreading out studying instead of cramming.                               |
| A B C D E..... |               | 32. Understanding difficult passages in textbook.                             |
| A B C D E..... |               | 33. Mastering content in a course you’re not interested in.                   |

**APPENDIX C**

<p>Dear Students,</p> <p>This form of <b><i>Problem Solving Skills Inventory</i></b> is for ELT students. You will find statements about Problem Solving Confidence, Approach Avoidance Style, and Personal Control. Please think about yourself as an ELT student for each statement below. Choose the best statement that appeal to you most.</p> <p>Please fill the boxes with <b>tick (✓)</b>.</p>	1 Strongly Agree	2 Moderately Agree	3 Slightly Agree	4 Slightly Disagree	5 Moderately disagree	6 Strongly Disagree
1. When a solution to a problem was unsuccessful, I do not examine why it didn't work.						
2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.						
3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.						
4. After I have solved a problem, I do not analyze what went right or what went wrong.						
5. I am usually able to think up creative and effective alternatives to solve a problem.						
6. After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.						
7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.						
8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.						
9. I have the ability to solve most problems even though initially no solution is immediately apparent.						
10. Many problems I face are too complex for me to solve.						
11. I make decisions and am happy with them later.						
12. When confronted with a problem, I tend to do the first thing that I can think of to solve it.						
13. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.						
14. When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.						
15. When confronted with a problem, I stop and think about it before deciding on a next step.						
16. I generally go with the first good idea that comes to mind.						
17. When making a decision, I weigh the consequences of each alternative and compare them against each other.						
18. When I make plans to solve a problem, I am almost certain that I can make them work.						
19. I try to predict the overall result of carrying out a particular course of action.						
20. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.						
21. Given enough time and effort, I believe I can solve most problems that confront me.						
22. When faced with a novel situation I have confidence that I can handle problems that may arise.						
23. Even though I work on a problem, sometimes I feel like I am groping or wandering, and am not getting down to the real issue.						
24. I make snap judgments and later regret them.						
25. I trust my ability to solve new and difficult problems.						

26. I have a systematic method for comparing alternatives and making decisions.						
27. When confronted with a problem, I do not usually examine what sort of external things my environment may be contributing to my problem.						
28. When I am confused by a problem, one of the first things I do is survey the situation and considers all the relevant pieces of information.						
29. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.						
30. After making a decision, the outcome I expected usually matches the actual outcome.						
31. When confronted with a problem, I am unsure of whether I can handle the situation.						
32. When I become aware of a problem, one of the first things I do is try to find out exactly what the problem is.						