An Empirical Investigation into the Interrelationships Among Selected Cognitive Characteristics of Iranian IELTS Test-Takers and Their Test Performance: A Structural Equation Modeling Approach

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CHAPTER 1

INTRODUCTION

1.0. Introduction

The purpose of this research is to investigate the relationships among selected cognitive characteristics of test-takers and performance on an EFL proficiency test, in a group of Iranian IELTS test-takers through the application of structural equation modeling (SEM) approach. This chapter begins with a background of the study which is followed by statement of the problem, significance of the study, and purpose of the study, respectively. Also, research questions and related hypotheses are introduced. Then major and key terms that might frequently appear in this study are defined. Finally, the chapter concludes with the limitations that the current study has suffered.

1.1. Background

Since the 1970s, research and theory in second and foreign language education have shifted the focus from examining the methods of teaching to investigating the processes of second and foreign language learning and acquisition (Purpura, 1999). Accordingly, several attempts have been made to propose models that can provide explanations for the cognitive, cultural, educational, linguistic, psychological and social factors that may influence second language acquisition (SLA).

A number of language scholars and researchers have advanced different models that can contribute significantly to the understanding of the varied factors which affect second and foreign language acquisition. Carroll's (1962) interactional model of school learning identified two major classes of variables: instructional and individual differences factors. Instructional factors fall into two sub-categories which are time and instructional excellence and the subcategories of individual differences are general intelligence, aptitude, and motivation. This model can be seen as the forerunner of present-day models which consider individual differences in SLA. Naiman (1978, as cited in Kunnan, 1995) put forward the "Good Language Learner" model which is only a listing of the classes of independent variables (namely teaching, learner, and context) and dependent variables (that is, learning and outcome) that influence SLA. Gardner's (1979, 1985) social-educational model of SLA, an intervening factors model, is concerned with the role of individual differences in SLA. Gardner's model offers four classes of variables including:

social milieu, individual differences, SLA contexts, and outcome. Dulay (1982, as cited Kunnan, 1995) proposed a linear model based on which three factors affect the SLA: the affective filter, the cognitive organizers, and the monitor. Bachman's (1990) general model for explaining performance on language tests also provide a useful framework to investigate the influence of several potential factors on language performance (Kunnan, 1995).

A similar trend has occurred in language testing and assessment as researchers have voiced increasing interest in delving into the factors that may influence performance on language tests. Performance on language tests is influenced by a number of varied and complex factors and an understanding of these factors and how they might influence test scores and performance is of crucial significance to the development and use of language tests (Bachman, 1990).Language researchers and specialists in the field of language testing and assessment have long held an interest in factors which might influence performance and scores on language tests, and numerous empirical studies have shown that variation on language test performance and scores can be attributed to a number of underlying factors (Purpura, 1999). According to Kunnan (1995), a number of studies have begun to indicate that several types of factors influence language test performance, but none of these studies has proposed a single over-arching model that could be used to investigate the effect of all these factors on language test performance.

Bachman's (1990) general model for explaining performance on language tests just filled the void which has been left by other researchers who had been attempting to propose a single framework to be employed to investigate the effects of factors on test scores. In fact, Bachman (1990) has proposed a single unified model that researchers and language testing and assessment specialists can use to postulate different hypotheses or relationships about factors that influence language test performance. This framework or model involves at least four factors: (1) communicative language ability (CLA), (2) the personal characteristics of test-takers, (3) test method factors, and (4) random factors.

Of the 4 proposed factors of variability, Bachman (1990) and later Bachman and Palmer (1996) argued that communicative language ability (CLA) is considered the central factor accounting for the variation of test scores in second language learners. In

the words of Canale (1988, as cited in Kunnan, 1995), Bachman's communicative language ability has been developed on "extensive second-language teaching experience of its proponents, reviews of theories of communicative competence, and state-of-art empirical and measurement techniques" (p.68). Communicative language ability builds on the groundbreaking pieces of research in communicative competence by Canale and Swain (1980), Canale (1983) and others (Hymes, 1972; Munby, 1978; Widdowson, 1978) (As cited in Kunnan, 1995). Bachman (1990) divides communicative language ability (CLA) into three components: language competence, strategic competence, and psycho-physiological mechanisms.

1. **language competence** is defined as " a set of specific knowledge components that are utilized in communication via language" (Bachman 1990, p.84). Bachman (1990) further divides it into two sub-components: organizational competence and pragmatic competence. While organizational competence encompasses formal aspects of language like grammatical competence (morphology, phonology/orthography, syntax and vocabulary) and textual competence (cohesion and rhetorical organization), pragmatic competence involves functional aspects of language like illocutionary and sociolinguistic competence;

2. **strategic competence** is defined as " the mental capacity for implementing the components of language competence in contextualized communicative language use" (Bachman 1990, p.84). It concerns with processes in language use: assessment, planning, and execution;

3. **psycho-physiological mechanisms** is defined as " the neurological and psychological process involved in the actual execution of language as a physical phenomenon" (Bachman 1990, p.84).

Kunnan (1995) sums up by asserting that this model differs drastically from earlier conceptualizations of language ability which characterized language ability as skills and components (listening, speaking, reading, and writing and associated with these skills phonology-orthography, lexis, grammar and mechanics) as proposed by researchers like Lado (1961), Carroll (1968), Cooper (1968), and Harris (1969).

Bachman's (1990) second set of factors that may affect test scores and performance is test-taker personal characteristics or background characteristics which includes the personal attributes of learners that potentially affect the differential performance of test takers on language tests. In this respect, test-takers are at variance on multiple aspects concerning (1) background or demographic characteristics such as age, gender, native language, ethnic identity, educational background, and socio-economic status, (2) socio-psychological or socio-cultural characteristics such as attitudes, motivation and effort expended, (3) personality characteristics such as self-esteem, self-efficacy, anxiety, and risk-taking and (4) cognitive characteristics such as aptitude, learning strategies, or cognitive style (i.e. introversion vs. extroversion, field dependence vs. independence) (Purpura, 1999).

Bachman's (1990) third category –test method factors- refers to the characteristics of the test instruments employed to elicit test performance and effects that they may have on test score variation. According to Purpura (1999), the role of test method factors in language tests originates from Bachman and Palmer's (1981, 1982) multi-trait multi-method studies in which they perceived that some variables loaded more heavily on the method factors than on the trait factors, showing that performance on language tests may partially be a function of the test method or the characteristics of the elicitation devices. To examine these relationships more systematically, Bachman (1990) and Bachman and Palmer (1996) have proposed a framework of test task characteristics which provides a clear-cut mechanism for identifying:

1. **the test environment**, which involves place and equipment, personnel, time of testing, and physical conditions;

2. **the test rubric**, which involves test organization in terms of salience, sequence, and relative importance of parts, time allocation, scoring procedures, criteria for correctness and explicitness of procedures, and test instructions in terms of language and channel used as well as specification of procedures and tasks;

3. **the test input**, which involves format of the test in terms of channel, mode, form, vehicle, and language presentation, identification of problem, degree of

speededness, language of the input in terms of length, organizational characteristics like grammar, cohesion and rhetorical organization, pragmatic characteristics like propositional content mainly in terms of vocabulary, degree of contextualization, distribution of new information and type of information, topic, genre, and functions and sociolinguistics characteristics;

4. **the expected response**, which involves all the characteristics mentioned in 3;

5. **the restrictions on response**; and

6. **the interaction between the input and response** in terms of reciprocal, nonreciprocal, and adaptive categories.

Bachman's (1990) fourth and final category which influences language test performance is random factors. This refers to the unsystematic variation of test performance due to events during a test that might impact test-taker's score. Random factors also refer to the interactions among components of communicative language ability (CLA), test-taker characteristics, test method factors, and measurement errors.

Taking all of the above-mentioned factors into account, Bachman (1990) sums up when test performance is improperly influenced by factors other than language ability being tested, the meaningfulness or validity of score interpretations will be reduced considerably. Bachman (1990:156) posits his central idea best:

> *The effects of both the test method and interaction between test-takers' individual characteristics and methods used in language tests may reduce the effect on test performance of the language abilities we want to measure, and hence the interpretability of test scores.*

For this reason, it is of significance to understand not only the nature and extent of these sources of variability, but also to control or minimize their influences on test performance so that the scores obtained on language tests solely reflect language ability and not other factors. As research into the effects of different factors on language test performance progresses, test developers will gain more insight and have better information about which characteristics interact with which test method facets, and would

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be able to employ this information in designing tests that are less vulnerable to such effects, and thus provide the best opportunity for test-takers to reveal their true best performance, and which are hence better and fairer measures of the language abilities of interest (Bachman, 1990).

Assessment, as an indispensable part of education, in general and language assessment in particular, can be designed in a way as to best represent what a cognition-oriented pedagogy is supposed to achieve. The need surfaces even more evidently when one considers the stakes involved in a large-scaled standardized language testing. Every year, an exorbitant number of candidates enroll on preparatory courses for international high-stakes English language proficiency tests such as IELTS and TOEFL to prepare themselves to take the test for occupational, academic and other high-stakes purposes. IELTS, as the world's proven English test, is taken by over 1.4 million candidates worldwide annually. Therefore, gaining an insight into the factors causing score variations on IELTS is of paramount significance for those involved in this internationally recognized test, specially for candidates who have always been striving for better band scores, researchers, teachers, institutes holding the test preparatory courses, etc .Thus, the current study has been an attempt to investigate the relationships among selected cognitive characteristics of test-takers and their language performance on an EFL proficiency test through the application of SEM approach. To be more specific, two sub-categories of second factor of Bachman's (1990) framework -language learning strategy use (in particular with regard to test-takers' self-reported cognitive and metacognitive strategies) and self-efficacy beliefs as parts of test-taker characteristics have been selected to explore how they are related to each other and language test performance (LTP) on the International English Language Testing System (IELTS).

1.2. Statement of the Problem

The refocusing on the learner and learning processes since the 1970s has caused an explosion of research aimed at investigating learner characteristics and second language acquisition. It has long been established that individual learner characteristics

may contribute significantly to a student's ability to learn a second or foreign language (Skehan 1989, 1988, as cited in Purpura, 2004). A similar trend has occurred in language testing as a recent concern among researchers in the field of language testing and assessment has been the identification and characterization of certain test-taker characteristics (TTCs), apart from that of communicative language ability, that may influence performance on tests of English as a foreign language (EFL) or English as a second language (ESL) (Bachman, 1990; Purpura, 1999). These test-taker characteristics involve personal characteristics such as age, gender, native language, educational characteristics such as background knowledge, previous instruction or exposure to English, as well as cognitive, psychological and social characteristics such as language learning strategies and styles, attitude and motivation, aptitude and intelligence, field dependence and independence, self-esteem and self-efficacy, extroversion and introversion, anxiety, personality, risk-taking etc.

These socio-psychological and strategic factors, alone or in combination with other personal attributes, may have a significant influence on test scores, suggesting that language knowledge may be necessary, but not in fact a sufficient, condition for "good" language test performance. Given the potential role of these factors in second/foreign learning and assessment, researchers must do their best to conduct groundbreaking pieces of research in which they investigate the nature of learner individual characteristics and their potential effects on learning outcomes. They must also examine how these personal attributes interact with each other, and how their simultaneous influence makes contributions to test-score variation; otherwise, the very constructs we wish to measure may be masked (Purpura, 2004).

1.2.1. SEM Applications in SLA and Language Assessment Research

Two of the fields in applied linguistics that have employed structural equation modeling as an analytical technique are second language acquisition (SLA) and language testing and assessment. Modeling in SLA has primarily focused on individual differences in language learning, such as language aptitude, attitude and motivation, intelligence, anxiety, cognitive styles etc. Modeling studies in language testing and assessment, on the other hand, have primarily focused on the nature of second language proficiency and

construct validation of the tests. Despite the flexibility, sophistication, and rigorousness of SEM in language testing and assessment research, only a few language testing researchers (Kunnan, 1995; Phakiti, 2005, 2006; Purpura, 1997, 1998, 1999; Sasaki, 1993) have employed SEM as a primary analytical tool to investigate the relationships between selected characteristics of test-takers and language test performance.

1.2.2. Language Learning Strategy Use and Language Performance

Concerning the potential impact of the first variable of this study (i.e. learning strategy use) on language performance, Brown et al. (1983, as cited in Purpura, 1999) asserts that most educators now accept the assumption that the use of learning strategies has become a guidepost for distinguishing high from low-skilled learners. Accordingly, a number of SLA researchers have begun to recognize the influence that learning strategy use may have on the acquisition of a second or foreign language (e.g., Abraham & Vann, 1987; Chamot, 1987; Clahsen, 1987; Cohen, 1984, 1987; Cohen & Aphek, 1981; Hosenfeld, 1977b; Wenden 1991; Wenden & Rubin, 1987,as cited in Purpura, 1999). Thus, an examination of the nature and further the relationship between leaning strategy use and test-taker language test performance is a must-carry out area of investigation because of the positional implication it may have for the construct validation of language tests (Purpura, 1999).

1.2.3. Self-Efficacy and Language Performance

One of the main concerns in foreign language teaching and research has been the investigation of learner's affective variables as a means of explaining differences in learners' ability to learn a new language and their language performance. A number of studies have been conducted in the field of English language teaching aiming to investigate the potential impacts of psychological aspects of learning, such as: motivation, anxiety, attitudes, self-confidence, aptitude,....on second/foreign language acquisition and performance.

Among the key factors suggested by different theories, learners beliefs about their potential has proved to be a better predicator of learner performance than any other closely related variables and through the enhancement of which performance on a given subject can be facilitated (Bandura, 1986). Learner beliefs, known as self-efficacy, are "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391).

Given the potential role of self-efficacy in language learning, the number of studies dealing with language self-efficacy and EFL success is not considerable. However, language self-efficacy has been addressed from different positions by different language researchers. To name some of the studies in this field, the concept of self-efficacy has been investigated in relation to academic performance (Bandura, 1997; Cotterall, 1990; Ergual, 2004; Wen & Johnson, 1997), motivation (Hsieh & Schallert, 2008; Graham & Weiner, 1996), self-regulation (Ghonsooly & Ghanizadeh, 2011; Pintrich & Schunk, 1996), cognitive strategy use (Edmond, 2005; Pintrich& De Groot, 1990), language achievement and anxiety (Cheng, 2001; Ghonsooly & Elahi, 2011), self-regulation and motivation in academic settings (Pajares, 1996), EFL achievement (Haddoune, 2003; Mahyuddin, 2006; Rahemi, 2009; Rahimi & Gheitasi, 2010), English teachers' emotional intelligence (Moafian & Ghanizadeh, 2009; Rastegar & Memarpour, 2009), concept mapping of achievement and self-regulation (Chularut & DeBacker, 2004), language learning strategies, proficiency, and age (Magogwe & Gahungur, 2007; Yilmaz, 2010), university students majors (Rahemi,2009), cognitive style (De Ture, 2004), motivation and achievement in writing (Pajares, 2003), motivation and proficiency (Mills, 2004), language learning strategies (Anstrom, 2000; Siew & Wong, 2005), language learning strategies and language ability (Gahungu, 2007), proficiency and language success (Tilfarlioglu & Cinkara, 2009), anxiety and reading and listening proficiency (Mills & Pajares, 2006).

While there is plethora of reasons to view the language learners' self-efficacy as a powerful variable which serves as a strong predictor of EFL learners performance, it seems that this variable has yet to receive due attention in the field of language testing and assessment as one of the several important factors within the Bachman's (1990)

influential framework in which he specified a number of factors (i.e. CLA, test-taker individual characteristics, test method, and random factors) that may affect language test performance. Moreover, little attempt has been made to examine the effect of self-efficacy in learning contexts in general and testing setting in particular in Iran. Hence, there is clearly a need for more studies to be conducted in this area in the local educational contexts to provide insight into language learners' self-efficacy beliefs as a potential predicator of their language success and performance. This motivated the present researcher to set out the present study in order to determine the Iranian language learners' perspective about their language performance ability (that is, their language self-efficacy) and further to investigate the relationship between their language self-efficacy level and EFL proficiency test performance on the IELTS in the context of English as a foreign language (EFL).

Thus, the present study aims to make contributions to the field of language learning and testing by pursuing the potential effects of selected cognitive characteristics of test-takers - language learning strategy use and self-efficacy- on the their language test performance on IELTS through the application of SEM approach.

1.3. Significance of the Study

This study has a number of far-reaching implications which can make contributions to the field of language testing / assessment and second/foreign language acquisition in theoretical, methodological, analytical and pedagogical/practical ways and can provide invaluable information for language learners, language instructors, test users, test developers as well as language and curriculum developers and language teaching materials writers.

From a theoretical perspective, the present study draws on cognitive psychology, social cognitive theory, language learner strategy research, and language assessment research to propose a model of the relationships among selected cognitive characteristics of test-takers (language strategy use-cognitive and metacognitive strategy use- and self-

efficacy beliefs) and LTP. More significantly, although numerous studies in second / foreign language acquisition have examined the relationship of learning strategy use and self-efficacy to language achievement, only a few studies have investigated the relationship of learning strategy use (Phakiti, 2003, 2005, 2006; Purpura, 1997, 1998, 1999; Song, 2005; Vogely, 1995; Zhang & Liu, 2008) and self-efficacy (Rahemi, 2009; Rahimi & Abedini, 2009) from the language testing perspective. Thus, this study attempts to respond to questions raised by numerous language testing theorists by testing the relationships between test-takers' individual characteristics and language test performance and investigating how learning strategy use and self-efficacy might influence performance on language tests. To the researcher's knowledge, not a single study has yet to investigate the potential impact of language learning strategy use on IELTS test-taker performance and put IELTS test-taking context under the investigation. More important, no piece of research has examined the relationship between self-efficacy, as a test-taker individual characteristic within Bachman's (1990) framework, and language test performance from a testing perspective not only in Iran but also in the world. It is this researcher's hope, then, this study, while not aspiring to give any definitive answers to questions raised in this fields, serves as a turning-point in terms of using IELTS setting as a means of examining test-taker language performance and focusing on self-efficacy as a potential source of test-taker performance variation from a testing perspective.

From a methodological perspective, this study uses questionnaire data to investigate the relationships among selected cognitive characteristics of test-takers and LTP. Although valid and reliable instruments are employed to measure these attributes, nobody can conceal the shortcomings that questionnaires as data collection instruments may suffer. They are sensitive to small differences in wording, they sometimes indicate cross-measurement of content, they produce over- or underestimates of data, and they cannot thoroughly reflect the given measured construct. Nevertheless, many researchers advocate the use of questionnaires as a well-established method for assessing test-taker characteristics. It's believed that questionnaire use advantages outshine its demerits as questionnaires allow for high degree of control over the constructs under investigations; they can be analyzed statistically; they can be administered to a large sample of test-

takers; and they show systematic patterns of behavior in large amounts of data (Purpura, 1997, 2004).

From an analytical perspective, this study uses SEM as a primary analytical tool to investigate the relationships between selected cognitive characteristics of test-takers and language test performance. SEM allows for investigating the casual relationships among multiple variables simultaneously and therefore providing insights into their possible relationships (Purpura, 1997). As mentioned earlier, only a few language testing researchers have employed SEM as a primary analytical tool to investigate the relationships between selected cognitive characteristics of test-takers and language test performance. Thus, the present study aims to makes contributions to this field by pursuing the potential effects of selected cognitive characteristics of test-takers - language learning strategy use and self-efficacy on the test-takers' language test performance on IELTS through the application of SEM approach.

From a pedagogical/practical perspective, the current study may provide insights on the types of language learning strategies language learners in general and test-takers in particular report during language learning, use, and testing and how this might influence their performance on language tests and how they use language learning strategies to learn language effectively. The findings of this study also inform test-takers which strategy-type behaviors appear to be beneficial to have a superior language test performance and which do not. They could also be used to provide language educators with an inventory of language learners' most frequently used language strategies, so that strategy training can be incorporated into their classroom, materials and curricula. Teaching students about different language learning strategies would enable them to improve their actual performance on classroom academic tasks, and enhancing students' self-efficacy beliefs would encourage their more participation in learning tasks and activities. Therefore, both learning strategies use and high levels of self-efficacy are correlated with superior performance on language learning tasks, thereby contributing to the development of language learners' communicative competence, which is the ultimate goal of every second / foreign language instruction. The results of this study can, therefore, potentially inform language educators, test developers, and researchers

concerning the factors which might influence the differential performance of individuals on language tests.

Furthermore, findings from several prominent research studies (e.g., Dreyer & Oxford, 1996; Green & Oxford, 1995) have indicated a need for additional research to examine the relationship between learning strategies and English proficiency using valid and reliable instruments, consistently administered in a variety of settings worldwide. Therefore, following this recommendation, part of this study has been designed in response to the call made by Oxford (1993) for more replication of language strategy research with language learners from different backgrounds in different cultural contexts. To be more specific, only few studies (Phakiti, 2003; Purpura, 1997; Song, 2005; Zhang and Liu, 2008) in language testing literature have looked at the relationships between cognitive and metacognitive strategy use and language test performance in an EFL achievement context. Thus, this suggests a need for more research in different EFL test-taking contexts. Moreover, although considerable research has been devoted to the study of self-efficacy in educational settings, Klassen (2004, as cited in Wang, 2004) notes that most of the students in these studies were from Western cultures. Consequently, Pajares (2000) calls for a "culturally attentive" educational psychology to investigate students in a range of social and cultural settings. This study intends to fill the gap by shedding light on the self-efficacy beliefs of Iranian language learners of English in a testing context.

Last but not least, in response to the IELTS organization's annual call for research proposal on " studies investigating the cognitive processes of IELTS test-takers" which has been made for several years in a row, the present study is an attempt to investigate the interrelationships among selected cognitive characteristics of Iranian IELTS test-takers and their test performance through the application of SEM approach.

1.4. Purpose of the Study

In the present study, the researcher examines and investigates the interrelationships among selected cognitive characteristics of test-takers and their performance on an EFL proficiency test through the application of SEM approach, in

particular with regard to the influence that test-takers' self-reported learning strategy use- cognitive and metacognitive strategy use- and self-efficacy might have on their test performance. In this respect, Kunnan (1995) argues that "a clarification should focus on this point: in any test situation (including the language test situation), there are test-takers and tests. Test-takers (in ESL/EFL) come to the test setting with certain personal attributes or background characteristics that may have a critical influence on their performance in the tests, in addition to the influence exerted by their language abilities"(p. 6). The researcher first examines the nature of self-efficacy of test-takers as measured by a valid and reliable questionnaire. He then explores how these three test-taker characteristics- cognitive and metacognitive strategy use as well as self-efficacy- relate to each other and performance on an EFL proficiency test as measured by *International English Language Testing System* (IELTS) which is jointly managed by University of Cambridge ESOL Examination (Cambridge ESOL), British Council and IDP: IELTS Australia and used widely across the world. Finally, drawing on path and SEM analyses, the researcher will find out which of the three independent variables in the present study (i.e. cognitive strategy use, metacognitive strategy use, and self-efficacy beliefs) is the strongest predicator of IELTS candidates' test performance.
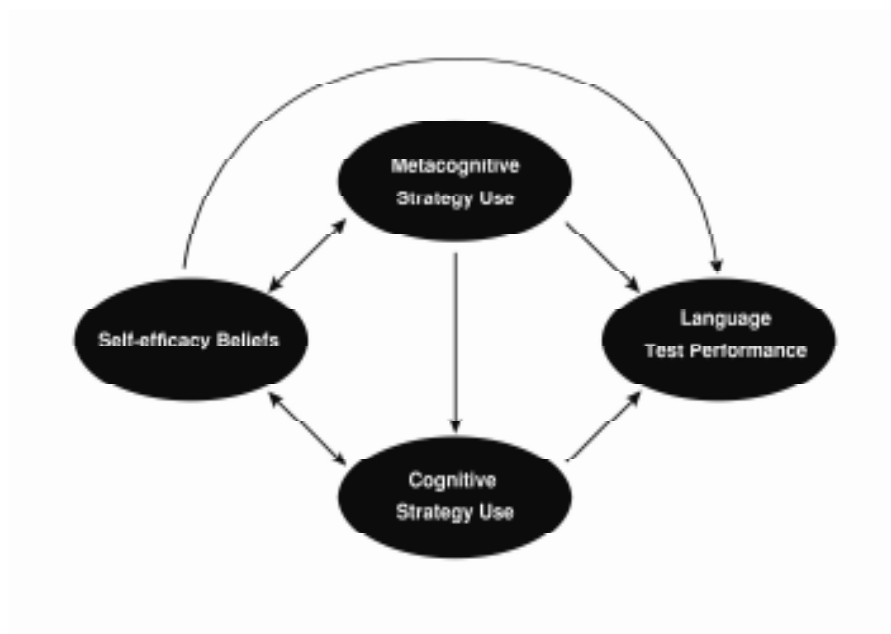
1.4.1. Research Questions

This study aimed to address the following research questions:

1. How proficient are Iranian IELTS test-takers in terms of their language test performance (Band Scores)?

2. What are the test-takers' perceptions of their cognitive strategy use, metacognitive strategy use, and language self-efficacy beliefs?

3. Is there any significant *correlational* relationship between each of the selected characteristics of test-takers (namely self-efficacy, metacognitive strategy use, and cognitive strategy use), other variables, and their language test performance?

4. Is the hypothesized structural model (Figure 1.1) of an appropriate adequacy for the Iranian IELTS test-takers?

5. What are the *cause-effect* relationships among the selected cognitive characteristics of test-takers (cognitive strategy use, metacognitive strategy use, and self-efficacy beliefs) and performance on an EFL proficiency test?

6. Which of the selected cognitive characteristics of Iranian IELTS test-takers (namely self-efficacy beliefs, cognitive strategy use, and metacognitive strategy use) is the strongest predictor of their test performance?

Figure 1.1 The hypothesized structural model of the relationships among selected cognitive characteristics of Iranian IELTS test-takers and their test performance.

1.4.2. Research Hypotheses

Based on the last four research questions, the following hypotheses were formed:

H 1. There is no significant *correlational* relationship between each of the selected characteristics of test-takers (i.e. self-efficacy, metacognitive strategy use, and cognitive strategy use), other variables, and their language test performance?

H 2. The hypothesized structural model (Figure 1.1) is not of an appropriate adequacy for the Iranian IELTS test-takers.

H 3. There is a positive direct significant *cause-effect* relationship between test-takers' self-efficacy beliefs and their language test performance.

H 4. There is a positive direct significant *cause-effect* relationship between test-takers' cognitive strategy use and their language test performance.

H 5. There is a positive direct significant *cause-effect* relationship between test-takers' metacognitive strategy use and their language test performance.

H 6. There is a two-way positive direct significant *cause-effect* relationship between test-takers' self-efficacy beliefs and their metacognitive strategy use.

H 7. There is a two-way positive direct significant *cause-effect* relationship between test-takers' self-efficacy beliefs and their cognitive strategy use.

H 8. There is a positive direct significant *cause-effect* relationship between test-takers' cognitive and metacognitive strategy use, postulating that metacognitive strategy use has a significant, positive, direct impact on cognitive strategy use in L2 learning, use or performance.

H 9. No specific selected cognitive characteristic of Iranian IELTS test-takers (i.e., self-efficacy beliefs, cognitive strategy use, and metacognitive strategy use) predicts their test performance perfectly.

Motivated by the literature (which will be reviewed in chapter 2) and previous research, the present study aimed to test the interrelationships of selected cognitive characteristics of test-takers and performance on an EFL proficiency test in an EFL context. A model was constructed to integrate four latent or unobserved variables: self-efficacy in English, metacognitive strategy use, cognitive strategy use, and language test performance which are not measured by approximated by 8, 3, 6, and 4 observed measures or indicators, respectively; the directional links among these variables are schematically represented in Figure 1.1. The four hypothesized causal paths are shown

by single-headed arrows and two correlational paths (between self-efficacy and metacognitive strategy use as well as self-efficacy and cognitive strategy use) are double-headed ones. Model specification was based on the theoretical and empirical considerations and all of these hypothesized paths among the variables are supported and confirmed sufficiently by theoretical and empirical evidence which is fully reviewed in the next chapter.

1.5. Definitions of Key Terms

Theoretical definitions of some concepts frequently used in the present study are given below to make them liable to empirical investigation:

Cognitive Strategies: Richards and Schmidt (2002) define cognitive strategies as "learning strategies that operate directly on incoming information in ways that enhance learning. Examples include rehearsal (repeating key words or phrases silently or aloud), organizing (e.g. summarizing what has been read or heard), etc" (p. 84).

IELTS: the International English Language Testing System (IELTS) is a test of English for academic purposes, used widely to measure the English language proficiency of international students whose native languages are not English and who intend to enter universities in Australia, Canada, New Zealand, the United Kingdom and elsewhere (Richards & Schmidt, 2002). IELTS conforms to the highest international standards of language assessments and is recognized by universities and employers in many countries. It covers the four language skills-listening, reading, writing, and speaking.

Language Learning Strategies: Richards and Schmidt (2002) define learning strategy as "the ways in which learners attempt to work out the meanings and uses of words, grammatical rules, and other aspects of the language they are learning" (p. 301). Oxford (1999) also defines learning strategies as "specific actions taken by learners to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8).

Metacognitive Strategies: Richards and Schmidt (2002) define metacognitive strategies as " a category of learning strategy which involves thinking about the mental processes used in the learning process, monitoring learning while it is taking place, and evaluating learning after it has occurred" (pp. 328-329).

Proficiency Test: Richards and Schmidt (2002) refer to a proficiency test as "a test that measures how much of a language someone has learned. A proficiency test is not linked to a particular course of instruction, but measures the learner's general level of mastery. Although this may be a result of previous instruction and learning, these factors are not the focus of attention" (p. 425). Some proficiency tests have been standardized for worldwide use, such as IELTS and TOEFL that are used to measure the English Language proficiency of international students who wish to study abroad.

Self-Efficacy: Bandura (1986) defines self-efficacy as "people's judgments of their capabilities to organize and execute courses of actions required to attain designated types of performance". Put it in more simple words, it refers to our perceptions of our ability to carry out a task (Jarvis, 2005).

Social Cognitive Theory: Bandura's (1986, 1997) social cognitive theory is a theory of human functioning which holds firmly to the view that humans can regulate their behavior. Individuals possess a system of self-beliefs that enables them to exercise a measure of control over their thoughts, feelings, and actions. Central to Bandura's (1986) social cognitive theory is the focus on "triadic reciprocality" or the interplay among personal, behavioral, and environmental influences. According to this theory, an individual's behavior is determined by the interplay of these three factors.

Structural Equation Modeling (SEM): SEM is a sophisticated rigorous analytical procedure that combines the capability of: path analysis to investigate relationships among multiple dependent and independent variables; confirmatory factor analysis which enables the researcher to confirm or reject the validity of the model, to hypothesize in advance the number of factors that underlie a number of variables, as well as showing how the variables hang together. ; And regression analysis to show the existence of the correlations among the variables and estimating a value for a dependent variable from a