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Research Paper

Predictive Power of Test-taking Strategies, Critical Thinking, and Self-efficacy in Accounting for Female Iranian Ph.D. Students' Language Proficiency: The Case of EPT

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Abstract
The present study was intended to investigate the roles of test-taking strategies, critical thinking, and self-efficacy in the language proficiency of the female Iranian Ph.D. students at Islamic Azad University (IAU), Shahrekord Branch, Shahrekord, Iran. The participants of the study, who were 98 Ph.D. students from a range of disciplines, were getting ready to sit for the English Proficiency Test (EPT) as a partial requirement for the completion of their courses and take the Comprehensive Exam subsequently. These participants were required to complete the test-taking strategies, critical thinking, and self-efficacy questionnaires, one questionnaire per session, towards the end of their English course with the present researcher. They also took a sample of EPT for their final exam. Standard multiple regression was conducted to see how well self-efficacy, critical thinking, and test-taking strategies could predict the participants' language proficiency. The obtained results revealed that language proficiency had strong, positive, and significant correlations with critical thinking, test-taking strategies, and self-efficacy. Moreover, it was found that all the three independent variables were significant predictors of language proficiency, with critical thinking being the best predictor, test-taking strategies the second, and self-efficacy the third. The significance of these results lies in the fact that individual attributes like critical thinking, self-efficacy, and test-taking strategies play a significant role in the success of students when it comes to language proficiency.

Keywords: *Critical Thinking, Language Proficiency, Self-efficacy, Test-taking Strategies*

قدرت پیش بینی راهبردهای آزمون دهی، تفکر انتقادی و خودکارآمدی در تبیین مهارت زبان دانشجویان مونث دوره دکتری: مورد آزمون مهارت زبانی دانشگاه آزاد اسلامی
پژوهش حاضر با هدف بررسی نقش راهبردهای آزمون‌دهی، تفکر انتقادی و خودکارآمدی در مهارت زبانی دانشجویان مونث ایرانی مقطع دکتری دانشگاه آزاد اسلامی واحد شهرکرد انجام شد. شرکت کنندگان در این مطالعه که 98 دانشجوی دکترا از طیفی از رشته ها بودند، در حال کسب آمادگی برای شرکت در آزمون مهارت زبان انگلیسی (EPT) به عنوان یکی از پیش نیازهای تکمیل دوره دکتری خود بودند. از این شرکت کنندگان خواسته شد در پایان درس زبان انگلیسی خود که با محقق حاضراخذ کرده بودند، پرسشنامه های راهبردهای آزمون دهی، تفکر انتقادی و خودکارآمدی را تکمیل کنند. برای امتحان پایان ترم نیز نمونه ای از آزمون EPT به آنها داده شد. سپس تحلیل رگراسیون چندگانه انجام شد با هدف مشاهده اینکه چگونه خودکارآمدی، تفکر انتقادی، و راهبردهای آزمون دهی می توانند مهارت زبان شرکت کنندگان را پیش بینی کنند. نتایج به‌دست‌آمده حاکی از این بود که مهارت زبان با تفکر انتقادی، راهبردهای آزمون دهی و خودکارآمدی همبستگی مثبت و معناداری دارد. علاوه بر این، مشخص شد که هر سه متغیر مستقل پیش‌بینی‌کننده‌های معناداری برای مهارت زبان بودند، به طوری که تفکر انتقادی بهترین پیش‌بینی‌کننده، استراتژی‌های آزمون دهی در رتبه دوم و خودکارآمدی در جایگاه سوم قرار گرفتند. اهمیت این نتایج در این واقعیت نهفته است که ویژگی‌های فردی مانند تفکر انتقادی، خودکارآمدی، و استراتژی‌های آزمون دهی نقش مهمی در موفقیت دانش‌جویان در خصوص مهارت زبانی میتوانند داشته باشند.
واژگان کلیدی: تفکر انتقادی، راهبردهای آزمون، خودکارآمدی، مهارت زبانی

Introduction

Testing in general, and language testing in particular, plays an important role in education to enhance the process of learning and has a considerable impact on the quality of instruction (Cowie & Bell, 1999). Tests have become a powerful tool for decision-making in our competitive societies, with individuals of all ages being frequently evaluated with respect to their rote memory techniques such as repetition, the use of mnemonics, or some other memory technique.

As it was well-stated by Pierce (2002, as cited in Kırmızı & Kömeç, 2016), testing is essentially incorporated in any learning and teaching activity. It not only provides vital information for pedagogical decisions which are necessary for a day-to-day course of actions taken by all educational stakeholders and paves the ground for diagnosing learners' weak and strong points related to classroom methodology but also presents particular feedback to the learners boosting the quality of both learning and teaching. It is common knowledge that some people are more successful at taking tests than others. A variety of factors exist that together or independently influence the success with which a test-taker will perform on the test. Testing also provides immediate feedback to the instructors forming and regulating their teaching practices according to the learning styles of their learners. Therefore, tests, various types of exams, and evaluation models are crucial instruments employed to measure the learning process. The language proficiency test which is the focus of this study is an evaluation of how well a person can use language to communicate in real life.

Ph.D. candidates in Iran at all branches of Islamic Azad University (IAU) are required to provide an acceptable test result on the IAU English Proficiency Test (EPT) if they plan to continue their education at the Ph.D. level. This requirement has turned into a hurdle for many Ph.D. candidates since they lack a working knowledge of English. To see if their performance on the EPT could be influenced by a number of factors such as test-taking strategies, critical thinking, and self-efficacy, this study explores the roles of these independent variables on this high-stakes test performance by Ph.D. candidates.

Cohen (2007) defined test-taking strategies as the kind of strategies that respondents use at the time of completing language tests. In fact, test-taking strategies are consciously "selected processes that the respondents use for dealing with both language issues and the item-response demands in the test-taking tasks at hand" (p. 308). Moreover, he suggests that test-taking strategies consist of language use and test-wiseness strategies. He also maintained while language-use strategies may be determined by the learners' proficiency in the language under assessment, test-wiseness strategies may depend on the test takers' knowledge of how to take a test.

On the other hand, the past decade or so has witnessed increasing attention to reflective thinking and its importance as an element of schooling. Reflective thinking or reflection is a part of the critical thinking procedure that especially deals with the practice of analyzing and making judgments concerning what has occurred (Dewey, 1933). As Dewey (1933) states, reflective thinking is concerned with the consequences of thoughts and recommends more physical activity to tackle and resolve a diversity of both personal and professional problems. Additionally, reflective thinking is of crucial importance in promoting learning (including listening comprehension) through complex problem-solving situations since it provides students with the opportunity to step back and think about how they resolve problems and how a special set of problem-solving strategies is appropriated to achieve their goal (Dewey, 1933).

Critical thinking is also claimed to be important in the acquisition of language skills particularly writing and reading (Shaharom, 2004; Seung-Ryul, 2002; Stapleton, 2001), two indispensable language skills that can help undergraduates secure their academic success. However, studies on the relationship between critical thinking and these two language skills, especially those which use second language learners as the sample are still not sufficient. Similarly, there are not many studies conducted on the relationship of the aforementioned construct with general language proficiency.

In a number of previous studies, it has been reported that CR is strongly associated with academic achievement. As an example, in the study conducted by Gandimathi and Zarei (2018) on CR, they reached the conclusion that students were able to learn better using critical thinking which enhanced their English language skills. In another study, Rashid and Hashim (2008) examined the critical thinking ability of Malaysian undergraduates and its relationship to language proficiency. Results indicated that the critical thinking ability of the undergraduates was much lower than that of their American counterparts. Nevertheless, significant correlations were found between their critical thinking ability and English language proficiency as measured by two national-level tests.

Finally, in a large number of previous studies, (e.g., Barkley, 2006; Celik, 2015; Chemens, et al., 2001; Chou, 2007; Coutinho & Neuman, 2008; Gahungu, 2007; Goulão, 2014; Mills, et al., 2007; Nevil, 2008; Shkullaku, 2013; Yusuf, 2011; Wu, 2006) self-efficacy has been shown to have a significant and positive correlation with learner's academic performance and achievement. Bandura (1977) defined self-efficacy as a personal belief in one's own abilities to accomplish a specific activity or task. It is a judgment of confidence about the performance (Lorsbach & Jinks, 1999). Self-efficacious learners devote a high amount of effort in order to meet their needs and attribute failure to factors that are in their control, rather than to external and irrelevant factors.

Many Ph.D. candidates at IAU struggle to provide an English certificate (usually EPT) by the time they are supposed to take their comprehensive exam. Their Ph.D. program is sometimes prolonged and they have to ask for extensions simply because they cannot meet the requirements of the English certificate they are supposed to submit to the university. This English certificate has become a thorny issue for most (if not all) of them. One way to help these students is to diagnose the factors that could be conducive to their English proficiency. This way, perhaps by fostering those factors, the Ph.D. candidates could be abler to cope with the English proficiency test they have to take. To this end, the current proposed study seeks to examine the roles of test-taking strategies, critical thinking, and self-efficacy, in the performances of IAU Ph.D. candidates on their English test (i.e., IAUEPT).

Literature Review

Various studies have been conducted on test-taking strategies (e.g. Block 1992; Purpura 1998; Phakiti 2003; 2008, Barati 2005; Cohen 2010). In the related vein, Rezaei (2006) examined the possible relationship between the subjects' proficiency level and their tendency in using various types of strategies while taking a test of language proficiency. The findings indicated that the three groups of students with different levels of proficiency had different approaches towards using test-taking strategies.

In his study with adult EFL learners, Barati (2005) employed quantitative and qualitative research in order to examine the effect of test-taking strategies on the learners' reading test performance. The findings showed a significant effect of test-taking strategies on the reading skills test performance of all ability groups who participated in that study. He, however, suggested that strategies did not always have positive effects on the test takers' performance but rather there were cases where they affected the test results significantly negatively (e.g. test-wiseness).

In another study, Nourdad and Ajideh (2019) used a mixed-method approach to examine the relationship between test-taking strategies and reading test performance. To this end, a reading comprehension test, and a 35-item Likert type strategy questionnaire were given to 214 male and female university students. Analysis of the gathered data revealed that there was a positive relationship between test-taking strategies and reading test performance and that successful, moderately, successful, and unsuccessful test-takers differed in their use of cognitive and metacognitive strategies. Pour-Mohammadi and Zainol Abidin (2012) also investigated the effect of test-taking strategy instruction on the reading performance of EFL learners and found it significantly effective.

Kashkouli, et al. (2015) examined the test-taking strategies employed to answer the Iranian National University Entrance Exam for MA in TEFL. The findings revealed that among all participants, the intermediate group used test-taking strategies more than others. The results also showed that monitoring

and evaluation were used significantly more than other strategies. Those researchers came to the result that test-takers relied more on their academic reading skills for both specific and general comprehension of the texts rather than on their background knowledge or test-wiseness strategies.

In a more recent study, Singh et al. (2021) showed how ESL students used cognitive, metacognitive, compensating, and social strategies. Participants expressed that understanding and reading the passage allowed them to draw conclusions better in answering the multiple-choice questions. The findings revealed that they used a compensation strategy whereby they tried guessing the answers on a number of occasions.

Several other studies have also investigated the effects of test-taking strategies on test performance (Bialystok, 1983; Cohen, 1984; Harris, 2014; Mohammadi & Jafre, 2011; Nevo, 1989; Phakiti, 2008; Pour-Radojevic, 2009). Goudarzi and Ghonsooly (2014), for instance, realized that learners' meta-awareness and test-taking strategy use significantly affected their test performance and their final achievement score. They also found a significant positive correlation between meta-awareness and test-taking strategy use during the test.

Regarding CR, literature highlights language ability as a contributing factor to efficient critical thinking skills (Feuerstein, 2007; Nisbett, Peng, Coi & Norenzayan, 2001). This implies that at the university level the demands for students to critically reason and argue about topics in an academic context and good language proficiency influenced by language ability are crucial.

Finally, students with a strong sense of academic self-efficacy have been proven to willingly undertake challenging tasks (Bandura & Schunk, 1981), expend greater effort (Salomon, 1984), show increased persistence in the presence of obstacles (Bandura & Schunk, 1981; Linnenbrink & Pintrich, 2002; Schunk, 1982), show lower anxiety levels (Meece, et al., 1990; Pintrich & DeGroot, 1990), demonstrate flexibility in the use of learning strategies (Bouffard-Bouchard, 1990; Pintrich & DeGroot, 1990), and self-regulate better than other students (Zimmerman, et al., 1992; Zimmerman & Martinez-Pons, 1986). Students with high self-efficacy also often demonstrate accurate self-evaluation of their academic performance and greater intrinsic interest in scholastic matters, and they attain higher intellectual achievement (Bouffard-Bouchard, 1990). Students with low self-efficacy, conversely, may choose to complete only uncomplicated academic tasks to which they exert minimal effort and limited persistence or they may choose to entirely avoid the accomplishment of an academic assignment.

In sum, despite all the studies conducted on test-taking strategies, critical thinking, and self-efficacy, what has gone unnoticed by EFL researchers, especially in the context of Iran, is the roles of these three variables in the language proficiency of Ph.D. candidates at IAU, who have to take EPT as a part of the requirement to do their Ph.D. program. The current study, thus, intends to fill this lacuna by studying the roles of those three variables in the language proficiency of the Ph.D. candidates at IAU. Hence, the following research questions were formulated to help achieve the aims of the study:

Q1. Do test-taking strategies, critical thinking, and self-efficacy have a statistically significant combined effect on the language proficiency of IAU Ph.D. candidates

Q2. Which of the three factors of test-taking strategies, critical thinking, and self-efficacy could be the best predictor of the IAU Ph.D. candidates' language proficiency?

Methods

The description of the methodology that was employed in this study is presented in what follows.

Design of the Study

The present study had an ex post facto design. According to Hatch and Farhady (1986), an ex post facto design is a design in which there is no treatment, yet the effects of existing attributes (i.e., independent variables) on a dependent variable are examined.

Participants

The participants of the study were selected from the Ph.D. candidates studying at IAU, Shahrekord Branch. More than 100 participants from different majors were asked to take part in the study, the returned questionnaires amounted to 98. These female participants ranged in age from 25 to 44. They were given a consent form prior to the beginning of the study, and then they took the questionnaires (to be described below). All these participants were Iranian students who had to submit an English certificate to the Bureau of Education of the university as part of the requirement for their Ph.D. program.

Instrumentation

The instruments that were used in the current study comprised the EPT and the test-taking strategies, critical thinking, and self-efficacy questionnaires. These instruments are described as follows.

English Proficiency Test (EPT)

The EPT (or sometimes called IAUEPT) is an English language proficiency test administered by IAU to the Ph.D. candidates of IAU to ensure their English language proficiency at a level required for Ph.D. studies. This test comprises 25 vocabulary questions, 40 grammar questions, 20 reading comprehension questions, and 15 cloze test items, amounting to a total number of 100 questions. The scores are announced out of 100 and a passing score of 50 is assumed for the Ph.D. candidates to meet the requirements of the Ph.D. program.

Test-taking Strategies Questionnaire

Finally, a test-taking strategies questionnaire was developed based on Barati's (2005) taxonomy of test-taking strategies, which consists of 27 items each of which presents a statement about the use of a test-taking strategy. According to Barati (2005), from the total of 27 items, 6 items related to planning strategies, 13 items ask about test takers' use of monitoring strategies, 4 items address evaluation strategies, and 4 items ask about the test-wiseness strategy. The test-taking strategy questionnaire was translated into Persian to be in the participants' native language and avoid any ambiguity. This questionnaire had 5-scale Likert items in which 1 = never; 2 = sometimes; 3 = often; 4 = usually, and 5 = always. The participants were asked to mark how frequently they used each strategy. Since the original model is basically focused on reading strategies, some modifications were made to suit various skills tested in the EPT. The reliability of the translated and modified questionnaire was estimated using the Cronbach alpha formula (.79) and its validity was checked by three experts in the field, who examined the questionnaire and suggested some minor modifications in terms of wording for the purpose of clarity. (see Appendix A)

Critical Thinking Questionnaire

The Persian version of the Californian critical thinking skills test (CCTST), Form B, was used to assess the students' critical thinking skills as form B of CCTST is suitable to test critical thinking at levels above high school and for adults (Facione, 1990). The questionnaire consists of 34 items that test critical thinking. These 34 items measure five categories of critical thinking ability namely, analysis (9 items), evaluation (14 items), inference (11 items), deductive reasoning (16 items), and inductive reasoning (14 items). Each is a multiple-choice item designed to be scored dichotomously, with one correct answer and three or four distracters. The reliability of this test (using Cronbach alpha) was reported to be 0.78 to 0.80 (Fasione, 1990). This test was translated into Persian and the report has been satisfactory for the construct validity of the scale. The following reliability indexes have been reported for the questionnaire: .62 for the whole test, .71 for analysis, .77 for evaluation, .77 for inference, .71 for deductive reasoning, and .71 for inductive reasoning respectively. The reliability coefficient of CCTST in the current study was calculated using Cronbach and turned out to be .75.

Self-efficacy Questionnaire

In order to measure the students' self-efficacy, the self-efficacy subscale of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Printrich, et al. (1991) was used. The MSLQ is based on a social-cognitive view of motivation and self-regulated learning (Pintrich, 2003). Eight items (#5, #6, #12, #15, #20, #21, #29, and #31) in this scale measure students' self-efficacy for learning and performance. Students rated themselves on a 5-point Likert-type scale, ranging from 1 (*not at all true of me*) to 5 (*completely true of me*). For scoring the scale, all the responses by a student were added up to a sum score. The range was a score from 8 to 40 points. The motive for selecting this instrument is its high index of reliability (r = .93, based on Pintrich et al., 1991). The reliability of the Persian translation of this scale was once again measured using the Cronbach's alpha formula and an index of .87 was obtained with the participants in this study. (see Appendix C)

Data Collection Procedures

During the fall term of 2020, more than 100 Ph.D. candidates studying in different majors at IAU, Shahrekord Branch were asked to fill out a consent form and take the test-taking strategies questionnaire, critical thinking questionnaire, and self-efficacy questionnaire; however, 98 candidates accepted to take part in the study. For those willing to take the hard copies of the questionnaires, each questionnaire was given to them in a session so their answers would not be affected by the boredom that usually builds up if participants are required to take a lot of questionnaires or questionnaire items. Alternatively, those students who were inclined to take the online version of the questionnaires were sent a link to a questionnaire every session, and their responses were collected online. This way, after three weeks, the questionnaire data were collected. Regarding their EPT scores, a sample EPT paper was given to them as the final exam of the course, and their scores were calculated and collected. Having collected all the required data, the researcher could code the data and prepare them for statistical analysis. In order to analyze the data and answer the two research questions of the study, the researcher ran a standard multiple regression analysis since this statistical test is used to examine the (combined as well as individual) effects of several categorical or continuous independent variables on a continuous dependent variable. Prior to conducting this test, all the assumptions of the test were checked.

Results

The results of the data analysis phase of the study are presented in what follows:

Descriptive Statistics and Relationships

The three independent variables in this study included test-taking strategies, critical thinking, and self-efficacy, while the dependent variable was language proficiency. Descriptive statistics regarding these four variables are presented in Table 1 below:

Table 1

Descriptive Statistics for the Variables in the Study

	Mean	Std. Deviation	*N*
Language Proficiency	52.53	13.98	98
Test-taking Strategies	94.47	10.98	98
Critical Thinking	23.03	4.25	98
Self-efficacy	23.78	5.81	98

The mean scores for language proficiency (M = 52.53), test-taking strategies (M = 94.47), critical thinking (M = 23.03), and self-efficacy (M = 23.78) , as well as standard deviations and the number of students, are displayed in Table 1. In Table 2, the results of Pearson correlation for the bivariate relationships between language proficiency on the one hand and the other three variables on the other are presented:

Table 2
Pearson Correlation Results

		Test-taking Strategies	Critical Thinking	Self-efficacy
Language Proficiency	Pearson Correlation	.89	.95	.79
	Sig. (2-tailed)	.00	.00	.00
	N	98	98	98

As is shown in Table 2, the correlation between test-taking strategies and language proficiency was a strongly positive one (r = .89) since based on Brown (1995), a relationship is weak if it is lower than ±.50, moderate if it falls between ±.50 and ±.80, and strong if it is over ±.80. This strong relationship between test-taking strategies and language proficiency was found to be of statistical significance as the *p-value* in front of the Sig. (2-tailed) row corresponding to this correlation analysis was smaller than the significance level (p < .05). In addition, the correlation between critical thinking and language proficiency was a strong positive relationship which was of statistical significance (r = .95, p < .05). Finally, self-efficacy and language proficiency were positively and moderately correlated, and the relationship between them reached statistical significance (r = .79, p < .05).

Results of the Regression Analysis

A standard multiple regression analysis was conducted to investigate the roles of test-taking strategies, critical thinking, and self-efficacy in the English language proficiency of IAU Ph.D. students. Multiple regression was used since there were three independent variables and one dependent variable in the design of the present study. Table 3 presents the results of the model run by multiple regression:

Table 3
Model Summary for Multiple Regression

Model	*R*	*R* Square	Adjusted *R* Square	*Std.* Error of the Estimate
1	.96	.93	.93	3.68

In Table 3, the value given under the *R* Square column shows how much of the variance in English language proficiency is explained by test-taking strategies, critical thinking, and self-efficacy. The value here is .93, which means that test-taking strategies, critical thinking, and self-efficacy accounted for 93 percent of the variance in the English language proficiency scores of the students. To examine the statistical significance of this result, Table 4 had to be consulted:

Table 4
Statistical Significance of the Multiple Regression Results

	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	17700.183	3	5900.06	433.88	.00
Residual	1278.225	94	13.59		
Total	18978.40	97			

In Table 4, the *p-value* under the Sig. column equaled .00, which was smaller than the significance level (p < .05), indicating that the model reached statistical significance. In other words, test-taking strategies, critical thinking, and self-efficacy could significantly predict the English language proficiency of the IAU Ph.D. students. Now Table 5 should be checked to see which of the independent variables contributed more to the prediction of English language proficiency.

Table 5

Predictive Power of Test-taking Strategies, Critical Thinking, and Self-efficacy for Language Proficiency

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	*Sig.*	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-31.92	4.12		-8.75	.00					
Test-taking strategies	.28	.07	.22	4.06	.00	.89	.38	.10	.23	4.32
Critical Thinking	2.21	.20	.67	10.61	.00	.95	.73	.28	.17	5.59
Self-efficacy	.26	.10	.11	2.55	.01	.79	.25	.06	.38	2.59

To compare the predictive power of test-taking strategies, critical thinking, and self-efficacy, the values under the *Beta* column under standardized coefficients should be checked. Looking down this column, one could notice that the largest value was the one for critical thinking (.67), indicating that critical thinking made the strongest contribution to explaining the English language proficiency of the IAU Ph.D. students. The relevant *Beta* value for test-taking strategies could also be seen out there (.22), which was the second-highest *Beta* score under this column, indicating that test-taking strategies was the second-best predictor of the Ph.D. students' English language proficiency. Lastly, there was self-efficacy with a *Beta* value of .11. All these three independent variables could significantly predict the Ph.D. students' English language proficiency because the *p* values for these variables under the Sig. *the* column was all smaller than the significance level ($p < .05$).

Discussion

As it was seen above, the results showed that test-taking strategies and critical thinking were strongly, positively, and significantly correlated with language proficiency. It was also revealed that the relationship between self-efficacy and language proficiency was positive, moderate, and statistically significant. Furthermore, the results of standard multiple regression indicated that critical thinking was the best predictor of language proficiency, and test-taking strategies were the second-best predictor, followed by self-efficacy as the third-best predictor among the above-mentioned factors. In fact, all the three independent variables of test-taking strategies, critical thinking, and self-efficacy were found to be significant predictors of language proficiency.

In line with our findings, there have been other studies that have reported the positive effects of test-taking strategies on different areas of language or different language skills (e.g. Block, 1992; Purpura, 1998; Phakiti 2003; 2008, Barati, 2005; Cohen, 2011). In a relevant study, Barati (2005) examined test-taking strategies among adult EFL learners. Similar to our findings, his results indicated a significant effect of test-taking strategies on the reading skills test performance of all ability groups who participated in that study.

In another very relevant study, Rezaei (2006) investigated whether there is any significant relationship between the subjects' proficiency level and their tendency in using various types of strategies while taking a test of language proficiency. Lending further support to our findings, he also found that a strong correlation existed between the learners' English proficiency and their test-taking strategies. In a more recent study, Kashkouli, et al. (2015) investigated the test-taking strategies employed to answer the Iranian National University Entrance Exam for MA in TEFL. The findings revealed that among all participants, the intermediate group used test-taking strategies more than others.

There have also been studies in the literature that have examined the effects of test-taking strategies on test performance (Phakiti, 2008; Radojevic, 2009; Pour-Mohammadi & Jafre, 2011; Harris, 2014). A wide

range of such studies has directly or indirectly corroborated our findings by concluding that there was a positive relationship between the use of test-taking strategies and test performance. Moreover, it was found that highly successful test-takers considerably used higher test-taking strategies than the moderately successful ones. This is a perfect justification for our findings because we also found a strong association in this regard.

Regarding self-efficacy, our findings lend further support to those of other researchers such as Magogwe and Oliver (2007). They conducted a study that sought to explore the relationship between preferred language strategies, age, proficiency, and self-efficacy beliefs. Partially in line with our results, their findings also revealed a dynamic relationship between the use of language learning strategies and proficiency, level of schooling (representing age differences), and self-efficacy beliefs. Also, Yilmaz (2010) investigated the English language learning strategies employed by English majors and aimed at exploring the relationship between preferred language strategies, gender, proficiency, and self-efficacy beliefs. Her findings are in line with the findings of our study.

Moreover, Wong (2005) explored graduate pre-service teachers' language learning strategies and language self-efficacy and the relationship between these two constructs. Supporting our current findings, Wong (2005) concluded that there was a significant positive relationship between language learning strategies and language self-efficacy. High self-efficacy subjects reported more frequent use of and a larger number of language learning strategies than did low self-efficacy subjects. A justifiable explanation for such results obtained by others and by us in this study is that self-efficacious learners have a greater potential for employing a wider range of strategies that in turn leads to better test performance.

Critical thinking is one of the cognitive abilities that "increase[s] the probability of a desirable outcome, ... the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions" (Halpern, 2003, p.6). Today, it is strongly believed that higher-order thinking skills especially critical thinking should be an integral part of the L2 curriculum to foster the language proficiency of the EFL learners (Davidson, 1998; Chamot, 1995 as cited in Liaw, 2007). Thus, it is no surprise that the students with higher levels of critical thinking could manage to get higher scores on the EPT proficiency test. The ones with greater levels of critical thinking are better able to perceive, think, analyze, and evaluate; it is not thus far from normal that their critical thinking skills could not only have a high correlation with language proficiency but also be a significant predictor for it.

Past research has also shed light on the relationship between critical thinking and language ability (Feuerstein, 2007; Nisbett, Peng, Coi & Norenzayan, 2001). More specifically, the results of the present study corroborate those of Goudarzi and Ghonsooly (2014), who found that learners' meta-awareness and test-taking strategy use significantly affected their test performance and their final achievement score.

Conclusions

This study aimed to discover whether or not test-taking strategies, critical thinking, and self-efficacy have a statistically significant combined effect on the language proficiency of IAU Ph.D. candidates. Moreover, an attempt was made to investigate which of these three factors could be the best predictor of the IAU Ph.D. candidates' language proficiency. The main conclusions drawn from the analysis of data and discussion of the results are as follows:

Firstly, the results indicated that test-taking strategies and critical thinking were strongly, positively, and significantly correlated with language proficiency. It was also found that the relationship between self-efficacy and language proficiency was positive, moderate, and statistically significant. Secondly, the results of regression analysis showed that critical thinking was the best predictor of language proficiency, and test-taking strategies were the second-best predictor, followed by self-efficacy as the third-best predictor among the above-mentioned factors. In fact, all the three independent variables of test-taking strategies, critical thinking, and self-efficacy were found to be significant predictors of language proficiency. The aforementioned conclusions reveal that test-taking strategies, critical thinking, and self-efficacy play an important role when it comes to their effects on the language proficiency of Iranian IAU

Ph.D. candidates. Furthermore, the three variables were found to be significant predictors of language proficiency among the subjects studied in this research.

The findings of the present study have implications for EFL learners, and teachers in the realm of FL and SL teaching/testing in particular and education in general. The major implication for EFL teachers is that they are required to individualize their classroom instruction based on students' levels of test-taking strategies, critical thinking, and self-efficacy. In fact, EFL teachers are encouraged to incorporate the results of studies like this into their everyday pedagogical practices. The strong associations found among the three variables under investigation in this study and language proficiency provide sufficient support for that.

Also, EFL/ESL teacher training programs should explicitly and systematically address these pedagogically important constructs of test-taking strategies, critical thinking, and self-efficacy. Teachers should be well prepared, in theory, and practice, to train their students to take advantage of these variables and to help students develop positive attitudes towards the roles played by these constructs in EFL learning.

Moreover, EFL learners in different contexts and at different levels of proficiency are also expected to consider and benefit from the findings of this study. The students must be made aware of the effects of these variables on their proficiency and how these variables can be strong predictors of their language proficiency levels. It should be noted that when learners discover the levels of existence of such factors in themselves and their contributory role to their better learning, they can be more certain about achieving better results. Besides, language test-taking strategies, critical thinking, and self-efficacy beliefs should be integrated into EFL/ESL syllabi to be a common practice in EFL/ESL classroom instruction.

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