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Exploring the Role of Strategic Knowledge and Strategic Regulation in Iranian EFL Learners' Listening Performance: A Structural Equation Modeling Approach

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Abstract
Drawing on the insight from metacognition theory, second language researchers conceptualize strategic knowledge and strategic regulation as the two dimensions of strategic competence in language performance. In this regard, the present study aimed at determining whether strategic knowledge and strategic regulation are related to listening performance. The study also attempted to specify how strategic knowledge and strategic regulation are related to each other and to listening performance using the structural equation modeling (SEM) approach. To this end, the data were gathered from a total of 343 Iranian EFL learners. They were required to answer a cognitive and metacognitive listening strategies questionnaire (CMLSQ) both before and immediately after completing the listening section of a sample TOEFL test. The correlational analysis showed that strategic knowledge and strategic regulation were significantly related to listening performance. Furthermore, the SEM analysis revealed that metacognitive strategies exert a significant, direct impact on cognitive strategies. The actual use of cognitive strategies, in turn, has a direct impact on listening performance. In other words, metacognitive strategy use as a latent trait produces significant, indirect effects on listening performance through cognitive strategies.

Keywords: Listening performance; Strategic knowledge; Strategic regulation; Structural equation modeling

INTRODUCTION

Since the 1970s, learner strategy use has gained increasing attention among second language researchers. Several studies empirically support the relationships between language learners' and test takers' strategy use and language performance (e.g., O'Malley & Chamot, 1990; Oxford, 1990; Politzer & McGroarty, 1985; Phakiti, 2003; Purpura, 1997, 1999; Rashtchi & Khani, 2010; Zhang & Zhang, 2013; Zhang, Goh, & Kunnan, 2014). Also, various theoretical models of second language proficiency (e.g., Bachman, 1990; Bachman & Palmer, 1996, 2010; Canale, 1983; Canale & Swain, 1980; Oller, 1979)

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acknowledge the importance of strategic competence as an integral component of language ability. Of these models, Bachman and Palmer (1996) specified a fundamental role for strategic competence as a non-linguistic factor contributing to communicative language ability. They conceived strategic competence as "a set of metacognitive strategies, which can be thought of as higher-order executive processes that provide a cognitive management function in language use, as well as in other cognitive activities" (p. 70).

Investigating the notion of strategic competence, Purpura (1997) found that the integration of metacognitive knowledge with cognitive behaviors would result in better second language performance. Accordingly, he suggested that Bachman and Palmer's (1996) notion of strategic competence should minimally include both cognitive and metacognitive components. Following the work of Purpura (1999), Phakiti (2003) investigated the relationship between cognitive and metacognitive strategy use and reading test performance. The results showed that cognitive and metacognitive strategy use was positively correlated with the reading test performance. Likewise, Song (2005) examined the extent to which cognitive and metacognitive strategy use accounted for test-takers' performance and found that the effect of cognitive and metacognitive strategy use on language performance was weak to moderate, explaining about 12.5–21.4% of the score variance. Following this line of research, Bachman and Palmer (2010) updated the framework of language use and incorporated cognitive strategies into it.

Later, drawing on insights from metacognitive research, Phakiti (2008) argued that Bachman and Palmer's (2010) strategic competence is similar to metacognition in nature, given that both concern self-regulation. In other words, the concept of metacognition is at the heart of strategic competence. According to metacognitive research (Baker & Brown, 1984; Flavell, 1985; Paris & Winograd, 1990), metacognition consists of two main components: *knowledge about cognition*, which is awareness of one's ability to meet the demands of a cognitive goal, and *regulation of cognition*, which is executive in nature and helps to orchestrate cognitive aspects of problem solving. Knowledge about cognition is relatively stable and stored in long-term memory, whereas regulation of cognition is rather unstable due to the nature of specific tasks and contexts at hand and occurs within working memory space. Likewise, In L2 strategy research, strategic competence can be conceptualized as encompassing knowledge of cognitive and metacognitive strategies (as part of knowledge about cognition) as well as the actual use of cognitive and metacognitive strategies (as regulation of cognition). In other words, strategic competence can be investigated via an examination of an individual's knowledge of cognitive and metacognitive strategies in a variety of contexts (strategic knowledge) and his or her reported actual use of the strategies in a specific context (strategic regulation).

Of interest in the current study is the notion of strategic competence in listening comprehension because, as Vandergrift and Goh (2012) stated, L2 listening is an area of considerable weakness for many students and receives the least structured support and systematic attention from teachers in the L2 classroom. As reported by Schwartz (1998, p. 7), strategic listening can be defined "as the process of being aware of listening processes, having a repertoire of listening strategies, and knowing which one works best with which listening tasks." There is a growing number of studies providing empirical support for the role of strategy use in listening comprehension. A review of language learning strategy research shows that many studies have indicated the importance of using listening strategies in the process of listening comprehension (e.g., Bacon, 1992; Bidabadi & Yamat, 2010; Chang, 2008; Chen, Zhang, & Liu, 2014; Goh, 1998, 2002; Liu, 2008; Rubin, 1994; Teng, 1997; Vandergrift, 1997, 2003). Research into strategic listening, initially, has focused on identifying and classifying strategies used by learners when involved in the listening process (e.g., Vandergrift, 1997; Vandergrift, Goh, Mareschal, & Tafaghodtari,

2006). Follow-up studies explored the relationship between second language learners' levels of proficiency and their degree of strategy use (eg., Goh, 2002; Liu, 2008; Vandergrift, 2003). Further research in this respect has addressed the relationship between listeners' strategy use and their listening performance (e.g., Goh & Hu, 2013).

Based on this review, it is fair to say that there is still a great need for further research to investigate how strategic competence and listening ability relate. None of the previous studies has deeply investigated the role of strategic competence regarding its two metacognition theory-based dimensions in listening performance. Mostly, they are limited to taking either general perceived listening strategy use (i.e., strategic knowledge) or perceived listening strategy use in a specific context (strategic regulation) into consideration in explaining EFL listening performance. However, as discussed earlier, there is a need to simultaneously examine both perceived knowledge of how one generally uses strategies across contexts (i.e., strategic knowledge in the long-term memory; as in Purpura, 1997) and perceived strategy use in an actual, specific context (i.e., strategic regulation; as in Phakiti, 2003). Furthermore, most of the previous studies have not employed powerful statistical analyses. They have analyzed the relationships between strategy use and listening performance through frequency counts, correlations, analysis of variance (ANOVA) or t-tests. So far, to the best of the researchers'' knowledge, no listening study has investigated the role of strategic competence in listening performance using the Structural Equation Modeling (SEM) approach. SEM, as Purpura (1997) suggested, has more power than other procedures in that it analyzes the structure and effect of unobservable latent variables through representing (a) the interrelationships between observed variables and constructs and (b) the interrelationships among constructs in an attempt to explain the causal links.

To sum up, previous research found that language users employ metacognitive and cognitive strategies in listening performance. However, according to Zhang, Goh, & Kunnan (2014), no conclusive evidence has been produced regarding how metacognitive strategy use is related to cognitive strategy use. Also, the effects of strategy use on listening performance in context-free and context-specific situations are vague. The previous studies are limited to EFL reading test performance, and hence generalizations of the findings to other language skills are limited because each language skill is processed and stored differently in the brain (VanPatten, 1994) and should be specially studied (Schmidt 1995). Accordingly, there is a need to study the role of strategic competence in other language skills (listening, speaking, and writing). The present study, therefore, was designed to address the research gap regarding the relationships between EFL learners' strategic knowledge and strategic regulation and their second language listening performance. Furthermore, it aimed at investigating how cognitive and metacognitive strategies are related to each other and to listening performance using an SEM approach. It is worth mentioning that, following Phakiti (2008), trait and state notions were borrowed from anxiety theory as an analogy to strategic knowledge and strategic regulation, respectively. In psychology, traits are taken as relatively stable attributes of an individual across different contexts, whereas states are transitory and unstable characteristics of the individual in a given context (Speilberger, 1972). Hence, in this study, strategic knowledge represents trait (generally perceived) cognitive and metacognitive strategies, whereas strategic regulation represents state (context-specific) cognitive and metacognitive strategies. To achieve the purpose of this study, we formulated the following research questions:

1. Is there any significant relationship between trait cognitive-metacognitive strategy use (strategic knowledge) and Iranian EFL learners' listening performance?
2. Is there any significant relationship be-

tween state cognitive-metacognitive strategy use (strategic regulation) and Iranian EFL learners' listening performance?

3. How do trait and state cognitive and metacognitive strategy use relate to each other and to listening performance?

METHODS

Participants

The participants consisted of a total of 343 respondents. Researchers would mostly recommend using sample sizes of at least 200 or 10 cases per parameters for factor SEM analyses (Kline, 2011, pp.11-12). Given this rule, we considered the sample size for the present study acceptable. There were 227 female and 116 male students in this study, ranging in age from 19 to 27. The participant pool was composed of BA students majoring in English Translation and TEFL from Islamic Azad University, Shiraz and Dezful Branches. Their English proficiency levels ranged from low intermediate to intermediate. This range of proficiency levels is typical for an EFL context despite the number of years of learning English. In this study, the participants were considered homogenous because they were at the same age group, had a small range of English language proficiency levels, and shared the same cultural, societal, and educational context.

Materials

Two types of instruments were used to gather the data: an English listening comprehension test and self-report listening strategies questionnaire designed by the researchers to collect data on the EFL learners' reported cognitive and metacognitive strategy use.

Listening Comprehension Test

The listening section of an actual TOEFL-PBT, already used by ETS at a worldwide test administration in 2002, was used to measure EFL learners' listening test performance. The test comprises 50 items, including three subsections: 30 questions about short conversations between two people, 8 questions about more extended conversations on general issues, and 12 questions about lectures or talks.

Cognitive and Metacognitive Listening Strategies Questionnaires (CMLSQ)

To measure the learners' cognitive and metacognitive strategy use, we constructed a questionnaire based on a survey of the literature on listening strategy use (Goh, 1998, 2002; Vandergrift, 1997, 2005; Vandergrift et al., 2006; Vogely, 1995). The literature review helped us select 52 items which we believed could tap cognitive and metacognitive strategies. Then, following Dornyei (2003), the initial list of items was subjected to expert judgment for redundancy, content validity, clarity, and readability. The process of expert judgment reduced the questionnaire to 46 items. The revised items which passed the judgment of the reviewers were piloted-tested with a group of 55 students for additional feedback on the clarity of the items, resulting in further fine-tuning. The questionnaire allowed the participants to mark their strategy use on a 6-point Likert scale: 1 (never), 2 (rarely), 3 (sometimes), 4 (often), 5 (usually), and 6 (always). Furthermore, some items were negatively worded so that respondents would not fall into a pattern of marking only one side of the rating scale. Based on the results of the pilot study, we depleted the questionnaire to 34 items tapping into two types of cognitive and metacognitive strategies, each with subscales which had to be validated separately.

In the validation phase, a total of 397 questionnaires were administered through face-to-face contact. All respondents completed the 34-item Cognitive and Metacognitive Listening Strategies Questionnaire (CMLSQ) questionnaire in English. The CMLSQ consists of two types of strategies, namely Metacognitive Listening Strategies (MLS) and Cognitive Listening Strategies (CLS). The data obtained from the 370 completed and usable copies of the questionnaires were fed into SPSS version18 to examine the internal consistency. The reliability of the instrument and its

two subparts were calculated using Cronbach's alpha. The reliability index for the CMLSQ was 0.88 and for its two sub-sections (i.e., MLS & CLS) were 0.86 and 0.90, respectively, which are very high-reliability indices. Then the data were subjected to PCA to estimate the maximum number of factors. The results of PCA for MLS revealed the emergence of three factors with eigenvalues exceeding 1 (5.626, 1.947, 1.735) accounting for 54.75% of the total variance. The related literature was used to verify the rationality of the results and to label the factors in the following way: factor (1) planning; factor (2) evaluation; and factor (3) monitoring. The results of PCA for CLS revealed the emergence of five factors with eigenvalues exceeding 1 (4.467, 2.429, 1.657, 1.357, 1.224) accounting for 65.49% of the total variance. Based on the loading of the items and their underlying theme, the components were labeled in the following way: factor (1) inferencing, factor (2) summarization, factor (3) prediction, factor (4) note-taking, and factor (5) elaboration. Table 1 presents the taxonomy of the metacognitive and cognitive listening strategies.

Table 1.
Taxonomy of Metacognitive and Cognitive Listening Strategies

Processing	Subscale	N	of Items Items
Planning	Metacognitive	7	1, 2, 3, 7, 9, 10, 12
Strategies	Evaluation	6	27, 30, 31, 32, 33, 34
	Monitoring	4	18, 22, 26, 28
Cognitive	Inferencing	7	14, 16, 17, 19, 20, 21, 23
	summarization	2	11, 29
Strategies	prediction	4	4 4, 5, 6, 8
	Note-taking	2	24, 25
	Elaboration	2	13, 15

Finally, CFA was conducted using AMOS 18 to verify and extend the factor models of MLS and CLS and to examine how well the factor models and the empirical data match one another. Several widely accepted goodness-of-fit indices were computed for both MLS and CLS. Regarding MLS, it appeared that CFI and GFI, and TLI are larger than the 0.90. Bearing in mind the point that, the closer the value to 1, the better fitness, this scale shows a good fit. Inspecting the normed chi-square and other goodness-of-fit indices showed a significantly fit model with χ^2/df =2.692, CFI=0.997., GFI=0.996 and RMEAS=0.065 (Table 7). The internal consistency of the total scale was found to be 0.86. Overall, the MLS shows a good and high model fit, confirming the three-factor structures behind the instrument.

Regarding CLS, it appeared that CFI, GFI, and TLI are larger than 0.90. The normed chi-square and other goodness-of-fit indices showed a significantly fit model with χ^2/df =2.205, CFI=0.947., GFI=0.962, and RMEAS=0.073. The internal consistency of the total scale was found to be 0.90. Overall, the CLS shows a good and high model fit, confirming the five-factor structures behind the instrument (see the final version of the questionnaire in the Appendix).

Procedure

A total of 365 copies of the CMLSQ were administered through face-to-face contact to measure the participants' strategic knowledge (i.e., trait cognitive and metacognitive strategy use). All respondents completed the questionnaire in English. Instructions were reviewed and clarified before participants completed the questionnaires. It was emphasized that there were no right or wrong answers and that the researchers were only interested in an accurate appraisal of how students attempt to understand oral texts. Also, the researchers tried to encourage the respondents to

comment on any item that seemed unclear to them. The length of time to complete the questionnaire was approximately 15 to 25 minutes. After about two weeks, the participants took part in the listening section of a standard version of TOEFL-PBT. The CMLSQ was administered after learners completed the listening test. This time, the questionnaire items were written using the simple past. This questionnaire aimed to measure the participants' perceived actual strategy use during the listening test (i.e., state cognitive and metacognitive strategy use). Out of the 365 questionnaires, 22 cases were dropped due to missing data, and 343 questionnaires proved useful for data analysis.

Data Analyses

The participants' responses to the questionnaire and their listening test scores were fed into SPSS 18 and AMOS 18 for data analysis. First, the Pearson product-moment correlation coefficient was used to investigate the relationship between EFL learners' strategic knowledge and strategic regulation and their listening performance. Then, based on information-processing and metacognition theory and empirical research, a series of relationships between measured and latent variables were hypothesized, and each relationship in the model was defined. Finally, SEM was used to investigate if the hypothesized model and the empirical data matched one another and to test the relationships among all observed and unobserved variables simultaneously. Because no single universally accepted criterion exists to judge model fit, several widely accepted goodness-of-fit indices were computed. The first index is chi-square divided by the degree of freedom called normed chi-square (χ^2/df). The value of normed chi-square less than 3 is considered acceptable. Besides the normed chi-square, the other criteria usually reported in CFA-AMOS studies as indicators of a model fit include CFI (Comparative Fit Index), GFI (Goodness-of-Fit Index), TLI (Tucker & Lewis index), PNFI (Parsimonious Normed Fit Index), and the RMSEA (Root Mean Square Error of Approximation). Models with a GFI, CFI, and a TLI greater than 0.90 and RMSEA equal to or less than 0.08 are considered acceptable.

RESULTS

The researchers performed the Pearson product-moment correlation coefficient to answer the first research question, which asked whether there was a relationship between strategic knowledge (as measured by trait cognitive and metacognitive strategy use) and listening test performance. As Table 2 shows, the correlation coefficient obtained was statistically significant for both cognitive and metacognitive strategies (r =.470 and r=.709, p < .001, respectively), confirming the relationship between the participants' trait cognitive and metacognitive strategy use and their listening performance.

The second research question sought to explore the relationship between strategic regulation (as measured by state cognitive and metacognitive strategy use) and listening performance. The result of the Pearson product-moment correlation coefficient showed a statistically significant relationship between state cognitive and metacognitive strategies (r =.371 and r =.739, p < .001, respectively) and listening performance (see Table 2).

Table 2.
Correlation Between Cognitive and Metacognitive Strategies and Listening Performance

N	*r*		*Sig*
Trait metacognitive strategies	343	.709**	.000
Trait cognitive strategies	343	.470**	.000
State metacognitive strategies	343	.739**	.000
State cognitive strategies	343	.371**	.000

The third question explored how state and trait cognitive and metacognitive strategies are related to each other and to EFL listening performance. AMOS 18 was employed to take a confirmatory hypothesis-testing approach for the proposed structural model. As Byrne (2010, p.81) put it, "a central point in structural equation modeling is the degree to which a hypothesized model fits or adequately describes the sample data." Hence, to evaluate whether the proposed model fit the data obtained from Iranian EFL learners, goodness-of-fit measures in AMOS were used. As mentioned earlier, models with a GFI, CFI, and a TLI larger than 0.90, normed chi-square less than 3, and RMSEA equal to or less than 0.08 are considered acceptable. Hence, the goodness-of-fit indices (table 3) showed that the model fit the data well with χ^2/df =2.273, CFI=0.974., GFI=0.989, and RMEAS=0.080.

Table 3.
Goodness-of-Fit Indices for the Hypothesized Model

Model	χ^2	χ^2/df	GFI	CFI	TLI	PNFI	RMSEA
Structural	222.761	2.273	0.989	0.974	0.915	0.947	0.080

Figure 1 presents the hypothesized SEM latent model that best represents the data in the current study, along with the estimates of factor loadings and error terms. Estimates of the factor loadings were relatively large, ranging from 0.64 to 0.89, which were statistically significant, and the standard errors were acceptable. Additionally, Table 3 provides the standardized and non-standardized parameter estimates for the structural model.

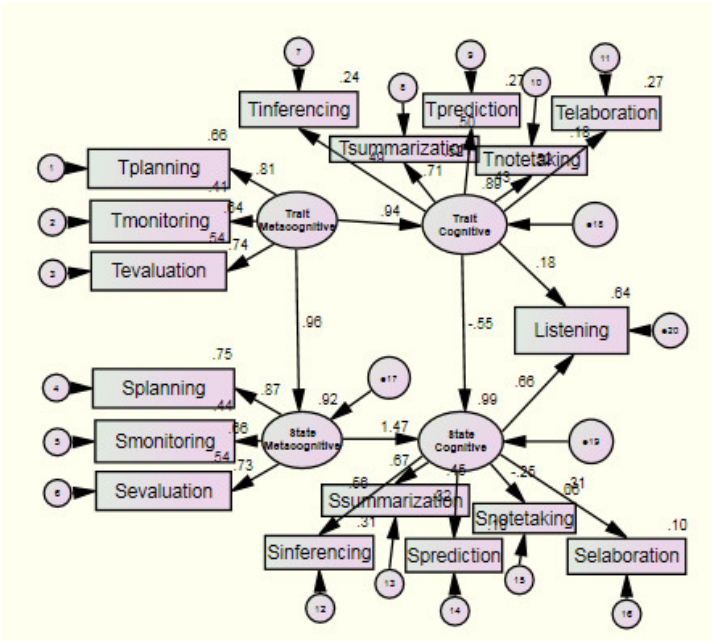

Figure 1. **Hypothesized SEM latent model of the relationships between state and trait cognitive and metacognitive strategy use and L2 listening performance**

Table 4.
Parameter Estimates for the Hypothesized Model

	Estimate				
Non-standard	Standard	S.E.	C.	R.	P
Trait Metacognitive →	State Metacognitive	.922	.957	.072	12.763 ***
Trait Metacognitive →	Trait cognitive	.725	.944	.084	8.628 ***
Trait Cognitive →	State Cognitive	-.111	-.553	059	-1.896 .058
State Metacognitive →	State Cognitive	.235	1.468	.061	3.840 ***
Trait Cognitive →	Listening	.554	.373	.177	.373 1.488 .137
State Cognitive →	Listening	10.265	.659	2.558	4.013 ***

In Figure 1, one-way arrows represent structural regression coefficients and thus indicate the impact of one variable on another. According to Byrne (2010), structural equation models can be represented by a series of structural equations, explaining how the observed and latent variables are related to one another. That is to say; the researchers can hypothesize the impact of one or more variables (observed and unobserved) on another variable (observed or unobserved) in the modeling of causal directions. Accordingly, based on the analysis of the SEM model and the related estimates, the following results were obtained:

The effect of trait metacognitive strategies on trait cognitive strategies: Figure 1 showed that the ß from trait metacognitive strategies to trait cognitive strategies was 0.94, indicating that knowledge about how one plans, monitors, and evaluates was statistically highly related to knowledge about using cognitive strategies in listening performance.

The effect of trait metacognitive strategies on state metacognitive strategies: As can be seen in Figure 1, the ß from trait metacognitive strategies to state metacognitive strategies was 0.96. The value of ß showed that the relationship between trait and state metacognitive strategy use was positive and strong. That is, the EFL learners' knowledge of metacognitive strategies has a direct, strong effect on their actual use of strategies in a specific context.

The effect of trait cognitive strategies on state cognitive strategies: Data presented in Figure 1 indicated that the ß from trait cognitive strategies to state cognitive strategies was very low and hence non-significant (see Table 4). In other words, trait cognitive strategies do not have an executive function over state cognitive strategies; that is, knowledge of cognitive strategies does not necessarily result in the actual use of cognitive strategies.

The effect of state metacognitive strategies on state cognitive strategies: Inspection of Figure 1 suggests a strong relationship between state metacognitive strategies and state cognitive strategies. ß was 1.47, indicating that using metacognitive strategies exert an executive function over cognitive strategies.

The effect of trait cognitive strategies on listening performance: As Figure 1 shows, ß of trait cognitive strategies to listening performance was very low and hence non-significant (see Table 4), suggesting that knowledge of cognitive strategies does not result in better listening performance.

The effect of state cognitive strategies on listening performance: As can be seen in Figure 1, the ß from state cognitive strategies to listening performance was .66, indicating that using cognitive strategies is significantly related to listening performance.

DISCUSSION

This study investigated the relationship between Iranian EFL learners' strategic knowledge (as measured by trait cognitive and metacognitive strategies) and strategic regulation (as measured by state cognitive and metacognitive strategies) and their listening performance. The findings revealed that there were significant relationships

between state and trait cognitive-metacognitive strategies and listening performance. The results confirm those of previous research (Goh, 2002; Liu & Goh, 2006; O'Malley, Chamot, & Kupper, 1989; Vandergrift, 2003), implying that both knowledge and use of cognitive and metacognitive strategies lead to better performance in L2 listening. The results are also in agreement with Phakiti's (2008) findings which demonstrated the importance of trait strategy use (as related to strategic knowledge) and state strategy use (as related to strategic regulation) in reading performance.

The central part of the study was related to specifying how strategic knowledge and strategic regulation are related to each other and to listening performance. Interpreting the SEM latent model, the researchers found that metacognitive strategies showed a significant, direct, positive impact on cognitive strategies in both context-free and context-specific situations. The actual use of cognitive strategies, in turn, had a direct, positive impact on listening performance. In other words, metacognitive strategy use as a latent trait produced significant, indirect effects on listening performance by employing cognitive strategies. These findings are in line with Purpura's (1997, 1999) study on second language test performance, Phakiti's (2003, 2008), and Zhang, Goh, and Kunnan's (2014) studies on reading performance, indicating that using both metacognitive and cognitive strategies simultaneously optimizes language performance. The findings also shed light on the notion put forth by a number of researchers (Bachman, 1990; Bachman & Palmer, 1996; Brown, Bransford, Ferrara, & Campione, 1983; Faerch & Kasper, 1983; O'Malley & Chamot, 1990; Wenden, 1991) that metacognitive strategies exert an executive function over cognitive strategy use in second language acquisition and use.

Moreover, trait metacognitive strategies were found to have a strong effect on state metacognitive strategy use. In other words, knowledge of metacognitive strategies is highly related to the actual use of metacognitive strategies in specific language use situations; hence, the relationship between strategic knowledge and strategic regulation is supported. This finding can substantiate the notion put forth by Vandergrift and Goh (2012) and Zhang and Goh (2006) that strategy use builds on strategy knowledge; that is, learners who have good strategic knowledge are also more likely to use strategies. However, trait cognitive strategies did not appear to have a significant effect on state cognitive strategy use, indicating that the extent to which one actually uses cognitive strategies depends on the specific listening context. Also, the model suggested that trait cognitive strategies not significantly affect listening performance, implying that knowledge of cognitive strategies does not result in better listening performance. Therefore, as argued by Phakiti (2008), trait cognitive strategy use does not have an executive function and thus how state cognitive strategies are to be used may largely depend on trait and state metacognitive strategies. In line with Kintsch (1998), it can be concluded that just because learners know something about cognitive strategies does not guarantee that this knowledge is activated in specific language performance, although it would be relevant for that process. In conclusion, the findings reveal that strategic knowledge and strategic regulation are highly related but remain distinct from each other.

The results of this study, however, should be approached and applied with caution since there were limitations to the current study that are worth mentioning because they have implications for further research. First, as Tseng, Dornyei, and Schmitt (2006) pointed out because strategic processing is driven by mental processes that are not observable, we are heavily reliant on self-report questionnaires as a measuring tool of individuals' metacognitive and cognitive strategies. Although the factor structure of the questionnaire was thoroughly analyzed before its implementation, it cannot be claimed that data from self-reports directly reflect mental processing. Therefore, in order to advance our understanding of strategic competence in language performance, it is suggested that future research adopt a mixed method

design, utilizing a qualitative approach to complement and triangulate the findings from a quantitative study (Dornyei, 2007). Second, this study employed a cross-sectional assessment of learners' strategy use that might have limited generalizability. Therefore, it would be better to gather the related data at various time points from the same learners, though it would be quite difficult to execute. Finally, the SEM model was not applied to determine the role of the level of proficiency and gender differences in strategy use and hence claims about group-specific models cannot be made. Therefore, future studies could build on the current findings by employing multi-group analyses.

CONCLUSION

The present study provided empirical evidence for the role of strategic competence regarding its two main components, namely, strategic knowledge and strategic regulation in Iranian EFL learners' listening performance. The findings showed that strategic knowledge and strategic regulation are significantly related to listening performance. Also, SEM analysis suggested that the knowledge and use of cognitive and metacognitive strategies function in synergy to maximize EFL learners' listening performance. The model also showed that metacognitive strategies regulate the use of cognitive strategies, which in turn directly affects listening performance.

To sum up, the present study has offered some further insights into our conceptualization of strategic competence and its role in L2 language performance. It is worth mentioning that this study serves as one of the few empirical studies that explore how cognitive and metacognitive strategies are related to each other through SEM analysis. Furthermore, no listening research has been done to investigate the role of strategic competence in listening performance using the SEM approach.

The findings of the current study embody theoretical and practical implications. Regarding the theoretical implications of the study, the present study contributes to the notion of strategic competence formulated by Bachman and Palmer (1996, 2010) in that two metacognition theory-based dimensions of strategic competence need to be recognized: strategic knowledge and strategic regulation. Hence, one cannot merely investigate either strategy knowledge or strategy use to understand the nature of strategic competence. Both facets need to be examined together.

Furthermore, the hypothesized SEM model of the interrelationships between strategic knowledge, strategic regulation, and listening performance finds support in Bachman and Palmer's (2010) revised model of language use in which cognitive strategies are perceived as part of strategic competence. The model not only indicates the plausibility of adding cognitive strategies to strategic competence but also reveals how metacognitive and cognitive strategies are related empirically. In other words, metacognitive strategy use as a latent trait affects language performance through cognitive strategies indirectly.

The findings also shed light on the relationship between strategic knowledge and strategic regulation as two metacognition theory-based dimensions of strategic competence. As Vandergrift and Goh (2012) mentioned, strategic knowledge can be conceptualized as a basis for strategic regulation; that is the strategy knowledge will undoubtedly influence the extent of strategy use. The current study found that this could be the case in that knowledge of metacognitive strategies acts as kind of prerequisite for metacognitive strategy use which in turn regulates the use of cognitive strategies in specific language use situations.

Regarding the practical implications of the study, the findings are persuasive enough to remind teachers to pay more attention to cognitive and metacognitive strategies for more successful listening performance. To this end, teachers can present learners with descriptions and exemplifications of what metacognitive and cognitive strategies are and how they are used. Also, considering the executive function of metacognitive strategies, this study highlighted the importance of metacognitive strategy instruction because cognitive strategies may not be executed well in the absence of metacognitive strategies; that is, if learners receive enough training in metacognitive

strategy use on listening tasks, they are likely to benefit from it in their use of cognitive strategies.

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Appendix

Cognitive and Metacognitive Listening Strategies Questionnaire

Listening Strategies	Never	Rarely	Sometimes	Often	Usually	Always
Before listening:						
1. I had a plan in my head for how I was going to listen.						
2. I decided which plans or strategies to use to get the correct answer in advance.						
3. I concentrated on the listening text and kept away from the things that distract my attention.						
4. I tried to predict the words I was likely to hear based on the title.						
5. Before listening, I made predictions about the listening material based on the title.						
6. I previewed the questions to get a clear understanding of the listening text before listening.						
While listening:						
7. I had a goal in mind as I was listening.						
8. As I was listening, I predicted what would happen.						
9. As I was listening, I tried to think in English without having to translate into my own language.						
10. When I had trouble understanding, I kept on listening because I expected to understand later on.						
11. When I had difficulty in understanding what I heard, I gave up and stopped listening.						
12. I organized the points I have heard to help me catch the overall meaning.						
13. I used my experience and knowledge to help me understand.						
14. When I did not understand, I paid attention to keywords to get the main idea.						
15. I compared what I understood with what I knew about the topic.						
16. I used the words I understood to guess the meaning of the words I didn't understand.						
17. I used the main idea of the text to help me guess the meaning of the words that I didn't understand.						
18. When I guessed the meaning of a word, I thought back to everything else that I had heard, to see if my guess made sense.						
19. I used pronunciation aspects like stress and intonation, to enhance my understanding.						
20. I used sound effects and tone of the speaker's voice to help me guess the meanings.						
21. If I didn't know the meaning of unfamiliar words or parts of a text, I used the context to infer their meanings.						
22. I skipped over words that I did not understand so that I didn't miss what was said next.						

23. I used the setting and the relationship between speakers to understand what the speakers were talking about.	
24. As I was listening, I took notes of the main points to get the main ideas.	
25. As I was listening, I referred to my notes.	
26. I was aware of time limitations and constraints in the test.	
27. As I was listening, I periodically asked myself if I was satisfied with my level of comprehension.	
28. I noticed when and where I was confused by the text.	
After listening:	
29. After listening, I made a mental summary of what I had listened to.	
30. I evaluated how much I could understand.	
31. I thought back to how I listened, and about what I might do differently next time.	
32. I reflected on my problems or difficulties and how to overcome them.	
33. I reflected on the listening test with my classmates.	
34. I assessed my answers based on my understanding of the listening material after listening.	