Roles of Linguistic Knowledge, Metacognitive Knowledge and Metacognitive Strategy Use

In Speaking and Listening Proficiency of Iranian EFL Learners

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Abstract

This study examined the influence of language knowledge, metacognitive knowledge and metacognitive strategy use on speaking and listening proficiency. Ninety six freshman and sophomore Iranian university students (male=6, female=90) were participated in the study. Two kinds of questionnaire and one language knowledge test were administered. Pearson product moment correlation was applied to find the relationship between the variables and speaking and listening proficiency. Multiple regressions were used to test the variance accounted for language knowledge, metacognitive knowledge, metacognitive strategy use in speaking and listening proficiency. The results demonstrated that all the variables correlated significantly with speaking and listening proficiency. All the variables uniquely contributed to speaking proficiency, however; in case of listening, just language knowledge and strategy use were predictors of listening proficiency. Other findings and pedagogical implication of the study are discussed.

1. Introduction

With the growing tendency toward developing communicative competence, speaking and listening have gained lots of attention from both teachers' and learners' side. According to a research, "adults spend 40-50% of communication time listening, 25-30% speaking, 11-16% reading, and about 9% writing" (Rivers, 1984, p. 331), accordingly composing large part of communication, investigating the different aspects of speaking and listening seems quit essential and indispensible. As Shumin (2002) suggests "speaking is closely related to, or interwoven with listening" (p. 205).

According to swain and canal's (1980) communicative competence framework, the abilities underlying speaking proficiency are: grammatical competence, discourse competence, sociolinguistic competence and strategic competence. Regarding these, speaking and listening skills can be assumed as multidimensional constructs, succeeding at which requires spotting their effective components and improving those parts.

In so doing, the current study aims at investigating the relationship among linguistic knowledge, metacognitive knowledge, metacognitive speaking and listening strategy use, and speaking and listening proficiency. So the purpose of this study is two-fold. First: investigating the relationship between these component variables and speaking and listening proficiency and second: demonstrating the strongest predictor of speaking and listening proficiency. Actually this research aims at making a step toward finding some empirical evidence to find at least some components of speaking and listening construct. Although this sketch of listening and speaking proficiency is just simplification of complex construct, it deals with three different components of knowledge and skills of fundamental relevance for speaking and listening proficiency: language knowledge, metacognitive awareness and metacognitive listening and speaking strategy

use. These variables are discussed briefly in the following parts.

1.1 Metacognitive awareness

The first attempt to generate a formal model of metacognition was presented by Flavell (1979). According to Flavell metacognition is defined as: "one's knowledge concerning one's own cognitive processes and products or anything related to them . . . active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective (Flavell, 1976, p. 232). Wenden (2001) offers a more simplified definition of metacognitive knowledge, describing this as "the part of long-term memory that contains what learners know about learning" (p. 45)

Metacognition involves two primary components: knowledge of cognition and regulation of cognition (Brown, 1987; Flavell, 1987; White & Frederiksen, 2005). Knowledge of cognition corresponds stored knowledge about cognitive processes and knowing what strategies to use, how to use them, and when to use them (Baker, 1989; Schraw, 1998). Regulation of cognition refers to active monitoring of cognitive processes and the actual use of strategies employed (Flavell, 1979; Schraw, 1998; Snyder, Nietfeld & Linnenbrink-Garcia, 2011). While knowledge about cognition facilitates the reflective aspect of metacognition, regulation of cognition encompasses the controlling aspect of learning (Baker, 1989; Artzt & Armour-Thomas, 1992; Schraw & Dennison, 1994).

The literature reviewed points that learners' metacognition can directly affect the process and the outcome of their learning (Palmer & Goetz, 1988; Zimmerman, 1989; Zimmerman and Bahdura, 1994; Dickinson, 1995; Victori & Lockhart, 1995; Winne, 1995; Wenden, 1998; Schoonen, Hulstijn, & Bossers, 1998; Boekaerts, Pintrich, & Zeidner, 2000; Zimmerman & Schunk, 2001; Mokhtari & Reichard, 2002; Bolitho et al., 2003) including facilitating recall (Flavell as cited in Nickerson et al, 1985), the comprehension of written texts (Brown et al, 1986; Schommer, 1990; Schommer et al 1992), the completion of new types of learning tasks (Vann & Abraham, 1990), improving the rate of progress in learning (Victori & Lockart, 1995), and the quality and speed of learners' cognitive engagement (Pintnch et al, 1993).

The mentioned literature reveals several research gaps, in particular, the paucity of research on the role of metacognitive knowledge in speaking proficiency and on speaking and listening proficiency in an integrated way.

It is useful to investigate metacognitive knowledge so that language teachers can be provided with an awareness of different types of learners in the teaching process and a better understanding of their students' expectations of, commitment to, success in, and satisfaction with their language classes (Horwitz, 1988, p. 283). This provides a good justification for more studies in the area. So this study investigates such kind of relationship, and the extent of its effect in an EFL context. By answering such questions more attention can be given and time can be spent on such kind of awareness instructions and teachers can be equipped with knowledge and understanding of how learning to listen and speak can be improved.

1.2 Metacognitive listening and speaking strategies

As posits by Cohen (1998) learner strategies refer to the steps or actions consciously selected by learners to improve the learning or use of a second language. Metacognitive strategies are defined as the skill to oversee, regulate and direct the language learning process (Vandergrift, 1999). "These strategies, which involve thinking about the learning process, include planning, monitoring, and evaluating" (ibid, p. 3).

The growing number of research on listening and speaking strategies (Forch & Kasper, 1983; Huang & van Naerssen, 1987; Kasper & Kellerman, 1997; Vandergrift, 1998; Goh, 1998) reflects the importance of oral and listening skills in language development.

As noted in Brown et al (1983), metacognitive knowledge and metacognitive strategies are two separate and distinct components of the broader notion of metacognition. Therefore they should not be considered interchangeable or similar. As he puts it, metacognitive knowledge refers to information learners acquire about their learning, while metacognitive strategies are general skills through which learners manage, direct, regulate, guide their learning, i e planning, monitoring and evaluating (cited by Wenden, 1998). While research into both areas has indicated a mutual relationship between the two variables (Cotterall, 1995; Wenden, 1991, 1998), few empirical studies have examined the relationship (Zhang & Goh, 2006) and even fewer in foreign language learning. As Rubin (1987) points out metacognitive knowledge is essential for learners selecting and activating strategies. Perkins and Salomon (1989, as cited in Hauck, 2001) posited that metacognitive strategies are weak if they are not connected to a rich knowledge base. Ellis and Sinclair (1989) point out that the basis for acquiring learning strategies is provided by learners' being aware of their language learning process.

Despite the large number of study on metacognitive strategies, there seems that the relationship between metacogitive

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strategies, metacognitive knowledge, language knowledge and speaking and listening proficiency hasn't been explored vet, especially in an EFL context.

The current study provides empirical evidence on this relationship and its relative importance to the speaking and listening proficiency. Beside this, the relationship between metacognitive strategy use and other variables is identified. By metacognitive strategies of speaking and listening strategies, this study means the students' perceived use of such strategies.

1.3 Language knowledge

Language knowledge refers to "a domain of information in memory that is available for use...in creating and interpreting discourse in language use" (Bachman & Palmer, 1996, 67)

In the current study language knowledge was considered as grammatical knowledge and vocabulary knowledge. As Hsu(2008) puts it, vocabulary knowledge denotes students' breadth of vocabulary whereas grammatical knowledge signifies students' knowledge of syntactic rules, prepositions and word usage.

It should be noted that in a theoretical framework of language ability, vocabulary Knowledge and grammatical knowledge are components of the language ability (Bachman & Palmer, 1996; Carroll, 1968).

There are lots of studies investigating the effect of vocabulary and grammar knowledge on reading comprehension (e.g.; Adams & Collins, 1977; Chall, 1987; Laufer, 1989; Anglin, 1993; Verhallen & Schoonen, 1993; Carlisle & Nomanbhoy, 1993; Hazenberg & Hulstijn,1996; Mecartty, 2000; Muter & Diethelm, 2001; Wang & Geva, 2003) but very few on speaking and listening skills. Koizumi (2005) examined the relationship between vocabulary knowledge and speaking performance among 225 Japanese learners of English at the novice level. His findings demonstrated that those learners with larger and deeper productive vocabulary knowledge produced a greater number of tokens and types and that better speaking performance mainly related to vocabulary knowledge.

Similarly, Oya, Manlo & Greenwood (2009) reached the same result by presenting that vocabulary knowledge correlated with fluency, accuracy, complexity, and global impression aspects of speaking performance.

In listening skill, too, studies have affirmed the critical role of vocabulary knowledge (Chung & Huang, 1998; Vidal, 2003). Mehrpour and Rahimi's findings (2010) revealed that the students in the treatment group significantly outperformed those in the control group in both reading and listening comprehension tests. This is while Chang (2007) found that vocabulary preparation prior to a listening comprehension test did not significantly affect students' performance on the listening test.

In terms of grammar knowledge, there seems to be no study examining the relationship.

The reviewed literature reveals that none of the studies have examined the relationship between language knowledge, metacogitive knowledge, strategy use and speaking and listening proficiency in an integrated way. Regarding the importance of speaking and listening as the first means of communication, conducting a research aiming at finding the relative effect of these component variables on speaking and listening proficiency seems helpful by providing teachers and learners with new insights toward speaking and listening instruction and learning.

1.4 Research questions

The current study attempts to answer the following questions:

- 1. What is the relationship between language knowledge, metacognitive knowledge, metacognitive listening and speaking strategy use and listening and speaking proficiency?
- 2. Which of these component variables is the strongest predictor of listening and speaking proficiency?
- 3. Does metacognitive knowledge affect other variables as well?

2. Methodology

In the following sections, first a brief explanation of participants is presented. Then, instrumentation and research design are described and finally it is concluded with an outline of data collection procedure.

2.1 Participants

The data for this study was collected from 96 (6 males and 90 females) university students in Mashhad, Iran. All of them were freshman or sophomore students, aged from 19 to 24. They had received education in EFL for about one to two years in university and one to six years in different language institutes. As a result they were expected to be experienced in speaking and listening, which could be conductive to collecting related data.

2.2 Instrumentation

In the current study three types of instruments were administered. A) Language Knowledge test B) Metacognitive Awareness Inventory in Listening and Speaking Strategies (MAILSS) C) Metacognitive Awareness Inventory.

2.2.1 Language knowledge test: Given the number of the participants and limitation of time and resources, two sections were included in this test: grammatical and vocabulary part.

As a matter of test reliability and validity, TOEFL tests (2002) were used. In order to assure that the items were fit appropriately the participants level of proficiency, items were selected from different TOEFL tests.

Grammatical part consisted of 30 items in two forms: sentence completion and error recognition. These items measured the following grammatical concepts: Noun phrase, verb phrase, word order, adjectival and adverbial and prepositional clause, conjunctions, parallel construction, comparison, gerund and infinitive, superlatives, conditionals, pronouns, mistaken words and articles.

Vocabulary part included 30 items. The items were multiple-choice in a form of sentence completion and finding the synonym of the word given in the sentence. Nouns, Verbs, Adjectives and Adverbs were included in the test. The words selected for this part were mostly applicable in speaking.

2.2.2 Metacognitive Awareness Inventory in Listening and Speaking Strategies (MAILSS) is a 40-strategy-item questionnaire. This inventory was adopted from Zhang and Goh's(2006) study who developed it from a few studies on listening and communication strategies (Huang & van Naerssen, 1987; Dornyei & Scott, 1997; Goh, 1998) and from the O'Malley and Chamot (1990) and Oxford (1990) inventories meant for language learning in general.

It entails four kinds of strategies: use-focused and form-focused learning strategies, comprehension strategies and communication strategies. The inventory both estimated knowledge about strategies and tapped into perceived use of strategies. As the current study aims at targeting the perceived use of strategies, it just concerns about the latter part. Participants rated the extent to which the statements in the questionnaire described their actual use of each strategy on a scale ranging from 1 to 5. A high score indicated strong agreement with the statement.

Reliability checks on the questionnaire yielded alphas ranging from 0.84 to 0.86.

2.2.3 Metacognitive Awareness Inventory (MAI). Metacognitive knowledge was measured by means of an inventory which was designed by Schraw and Dennison (1988) for assessing metacognitive awareness. It was a 52-item inventory with reliability of .90.

Items were classified into eight subcomponents subsumed under two broader categories, knowledge of cognition and regulation of cognition.

In order to make this inventory brief, nineteen repeating items were dropped and 33 items were used. Participants rated each item according to their applying of it from Never=1 to most often=5.

At the end of this inventory students were asked to rate their own speaking and listening from 1(poor) to 5(excellent). They were also questioned if they can talk fluently in English for five minutes and then to rate themselves and also if they can listen to another person speaking English and comprehend his/her utterance without interrupting the speaker and again if yes, to rate themselves.

2.2.4 Students speaking and listening proficiency was obtained through their acquired scores in speaking and listening course. So their scores were taken from their teacher.

2.3 Procedure

The data was collected during discussion class sessions. The consent of the teacher had been obtained beforehand.

First, the language knowledge tests were issued to the participants. In order to avoid wild guesses, the allocated time for answering the test was more than needed, about one hour and a half for 60 items.

Next session, about seven days later, the participants were given the metacognitive awareness in listening and speaking strategies inventory (MAILSS). The directions were given in Persian (their native language). There was no limited time for filling out this questionnaire as a matter of letting participants think about their strategies and filling out as acute as possible.

Upon the completion of the MAILSS, the metacognitive awareness inventories were distributed among participants. Directions of this one, too, were given in Persian and no limited time was assigned for completing it.

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3. Results

The objectives of this study were to (a) investigate the relationship among language knowledge, metacognitive knowledge, perceived metacognitive strategy use and listening and speaking proficiency. (b) assess the effect of these component variables on speaking and listening proficiency. (c) determine the strongest predictor of speaking and listening proficiency and (d)examine the effect of metacognitive knowledge on other component variables.

In order to answer the first question, Pearson product moment correlation was run through applying SPSS 19. The results are presented in Table 1. Generally, the expected correlation was obtained. All of the component variables correlated significantly with speaking and listening proficiency (p < 0.01) and vary from .38 to .75. Speaking enjoys the highest correlation with metacognitive knowledge, r(94)=.71, p < .01 and listening has the largest correlation with vocabulary knowledge, r(94)=.51, p < .01. As expected, there exists a significant correlation between listening and speaking proficiency (r = .53). The highest correlation among the component variables belongs to metacognitive knowledge and perceived strategy use, r(94)=.75, p < .01 and the lowest one holds between language knowledge and perceived strategy use, r(94)=.40, p < .01

<Table 1 about here>

Regarding the second question, hierarchical multiple regressions was computed with speaking proficiency as dependent variable and language knowledge, metacognitive knowledge and metacognitive strategy use as independent variables. The results are depicted in Table 2.

The regression with all the variables was significant at the .05 level. Therefore all the variables can be seen as predictors of speaking proficiency. The R^2 was .59 indicating that 59% of the variance in speaking proficiency may be attributed to language knowledge, metacognitive knowledge and metacognitive strategy use. The adjusted R^2 was .57 signifying that in another sample, 57% of the variance in speaking proficiency may be attributed to these component variables. For the speaking proficiency, the y intercept value of 10.75 indicated that with no additional information about speaking, a student's overall speaking proficiency score will be predicted to be 10.75. The model predicts that scores in speaking proficiency could be modeled by: speaking proficiency= 10.75 + (.05)*language knowledge + (.03)*metacognitive knowledge + (.01)* metacognitive strategy use

As can be seen in Table 2 metacognitive knowledge is the strongest predictor (β = .40, t(92)=3.88, p< .05) of speaking proficiency among the other component variables.

<Table 2 about here>

The results of multiple regressions are found in table 3. Except in case of metacognitive knowledge (β =-.02, t(92)=-.19, p=.86) other variables are significant at .05 level. Therefore language knowledge and strategy use uniquely contribute to the prediction of listening proficiency. The R2 = .28 indicated that the model accounted for 28% of the variance in listening proficiency. The adjusted R2 was .26. The y intercept value of 9.16 indicates that with no additional information about listening, a student's overall comprehension score will be predicted to be 9.16. The regression yielded the following equation: listening proficiency= 9.16+ (.09)* language knowledge + (.29)* metacognitive strategy use. The B value of language knowledge for listening comprehension (B = .09) indicated that for every correct response, a student's overall comprehension predicted score will increase by .42.

In case of listening proficiency, language knowledge was found to be the strongest predictor (β = .35, t(92)= 3.41, p<.05) among other component variables.

The last question can be answered by just having a look at the table of correlation. Metacognitive knowledge correlates significantly with language knowledge, r(94)=52, p<.01, grammatical knowledge, r(94)=48, p<.01 and vocabulary knowledge, r(94)=55, p<.01. It also has the largest correlation with metacognitive strategy use.

<Table 3 about here>

4. Conclusions and Discussion

The results of the study provide the answers to the three questions. First, language knowledge, metacognitive knowledge and metacognitive strategy use correlated significantly and substantially with speaking and listening proficiency. This kind of relationship has been demonstrated by other researchers but in separated manner. Vocabulary and grammar knowledge have been already considered as components of speaking and listening skills, so their correlation with speaking and listening proficiency was expected. As mentioned before, there are some studies which claim that metacognitive awareness and metacognitive strategy instruction improves listening and speaking, therefore the correlation among metacognitive knowledge, metacognitive strategy use and speaking and listening proficiency is logical. It can be concluded that the more one possesses language knowledge, metacognitive knowledge, metacognitive

strategy use, the more proficient he is in speaking and listening.

Among other variables, speaking proficiency showed the largest correlation with metacognitive knowledge. And listening had the highest correlation with vocabulary knowledge. This confirms the findings of H. Mecartty (2000). He examined the relationship between lexical and grammar knowledge and listening and reading comprehension and found the strongest correlation between vocabulary knowledge and listening.

Second, all of the independent variables uniquely contributed to speaking proficiency. Being an important issue in speaking, an accepted medium level of language knowledge is fundamental and obligatory in one's attempt to speak. According to Mecartty (2000) "in order for L2 learners to effectively comprehend and process discourse, they must develop the base components of lexical and grammatical knowledge among other complex features." (p. 1). So the contribution of such knowledge to speaking was expected.

Being one of the most reliable predictors of learning (Wang, Haertel and Walberg 1990), metacognitive knowledge is found to be the strongest predictor in speaking among other variables. As Vandergrift posits, learners with high degrees of metacognitive awareness are better at processing and storing new information, finding the best ways to practice and reinforce what they have learned. This kind of processing and practicing, gives learners the opportunity to pay attention to what is useful in improving their speaking. One can have sufficient vocabulary and grammar knowledge but not be able to use them appropriately in right time and place. Therefore this is metacognitive knowledge which gives one the ability to adapt what he has learned to new situations or as Bransford et al. (1999) puts it, to transfer his learning; that is, the ability to use knowledge gained in one setting or situation in another place. Person knowledge, task knowledge and strategy knowledge are three categories which are described by Flavell (1979). Person knowledge is general knowledge learners have acquired about human factors that facilitate or inhibit learning; task knowledge is what learners know about the purpose, nature and demand of a task and how it will serve their language learning needs and strategy knowledge is general knowledge about what strategies are, why they are useful, and specific knowledge about when and how to use them (Wenden, 1998). Therefore, those without metacognitive knowledge lack knowledge of their strength and weakness can't decide on the appropriate way of approaching the task and aren't able to deploy the right strategy. Consequently they cannot organize their knowledge in a unified manner and use it at the time of speaking.

Metacognitive strategy use was found to uniquely contribute to speaking. According to O'Malley *et al.* (1985) such strategies help learners to deliver meaningful messages. It has been always argued that learners having more strategy at their disposal are more likely to use them and that using strategies leads to more successful performance and satisfying outcomes. Therefore by using metacognitive strategies, learners plan and decide on different ways of uttering their thoughts and ideas, monitor their speaking to convey their meaning as clear and appropriate as possible and then evaluate their performance to come through their weak and strong points.

Both language knowledge and metacognitive strategy use showed a unique contribution to listening proficiency. Language knowledge was the strongest predictor of listening among other variables.

The contribution of language knowledge to listening can be explained by considering this knowledge as one of the essential and vital components of listening skill. Language knowledge can be seen as the first and the most fundamental steps in acquiring listening skill, because lacking such knowledge leads to one's communication hindrance at the first moments of conversation.

As mentioned before, effective and less effective listeners are sometimes differentiated on the basis of using metacognitive strategies. Using metacognitive strategies has been considered very essential which results in better processing of what one listens to. By using metacognitive strategies learners equip themselves priory by planning how to process the flow of utterance, or by deciding whether to focus on the details or just grasp the whole idea. During the listening, they monitor themselves in order to follow what they have planned to do and after listening they evaluate themselves to see whether they have accomplished what they planned to and to find about their weak parts and trying to improve those parts.

Surprisingly, metacognitive knowledge made no contribution to listening proficiency. This can be due to the so-called suppressor effect (Tabachnick & Fidell, 1996) which is caused by the high intercorrelation between metacognitive knowledge and listening proficiency and the intercorrelation between metacognitive knowledge and strategy use. However, this can be explained by regarding that this study was conducted in an EFL context in which learners are exposed to language just in their classrooms. Due to the limited time, teachers mostly spend class time on teaching speaking, reading and writing skills and very little is devoted to teaching different methods of acquiring listening. So there is no formal trend of teaching listening skill and Iranian learners should just learn it by themselves and by exposure to oral conversation. Usually, in such context, learners aren't received metacognitive instruction directly. Therefore, due

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to lack of enough metacognitive knowledge, students mostly rely on their language knowledge in order to comprehend what they listen to.

Unfortunately, most of the conducted researches on speaking and listening have focused on English as second language. This is while foreign language learners need such studies more than second language learners. Because unlike second language learners, they don't have the opportunity to speak and listen to others' speaking English outside the classroom. Therefore due to the importance of speaking and listening among foreign language learners, this area begs for further research.

Speaking and listening can be investigated with more component variables such as speed of vocabulary access or word recognition. Or in order to find more reliable result, the same study can be conducted with more participants or in different EFL contexts. It seems that conducting such studies is quite essential and helpful.

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Table 1. Regression Analysis; speaking proficiency

		Lang	Gram	Vocab	Meta	Stra	Speaking	Listening
	Pearson Correlation	1	Orum.	70000	1,1014	Suu	Speaking	Zistemi
Lang	Sig. (2-tailed)							
	N	96						
	Pearson Correlation	.598**	1					
Gram	Sig. (2-tailed)	.000						
	N	96	96					
Vocab	Pearson Correlation	.685**	.633**	1				
	Sig. (2-tailed)	.000	.000					

	N	96	96	96				
	Pearson Correlation	.523**	.486**	.557**	1			
Meta	Sig. (2-tailed)	.000	.000	.000				
	N	96	96	96	96			
Stra	Pearson Correlation	.402**	.463**	.518**	.754**	1		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	96	96	96	96	96		
Speaking	Pearson Correlation	.594**	.688**	.681**	.710**	.624**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	96	96	96	96	96	96	
	Pearson Correlation	.462**	.448**	.516**	.389**	.430**	.533**	1
Listening	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	96	96	96	96	96	96	96

Table 2. Regression Analysis: listening proficiency

Coefficie	ents ^a							
	M - 1 - 1	Unstandardized Coefficients		Standardized Coefficients		g: -	95.0% Confidence Interval for B	
	Model	B Std. Error		Beta	t	Sig.	Lower	Upper
		В	Std. Lifei	Beta			Bound	Bound
	(Constant)	10.753	.566		19.015	.000	9.630	11.876
1	Lang	.051	.013	.305	3.889	.000	.025	.077
1	Meta	.030	.008	.401	3.674	.000	.014	.046
	Stra	.012	.006	.199	1.961	.053	.000	.025

a. Dependent Variable: speaking

Table 3. Metacognitive knowledge correlates significantly with language knowledge

7	Model	Unstandardized Coefficients		Standardized Coefficients	Т	Sig.	95.0% Confidence Interval for B	
1	viodei	В	Std. Error	Beta	1	oig.	Lower Bound	Upper Bound
	(Constant)	9.169	1.142		8.027	.000	6.900	11.438
1	Lang	.090	.026	.353	3.412	.001	.038	.142
1	Meta	003	.017	028	195	.846	036	.030
	Stra	.029	.013	.309	2.304	.024	.004	.054

a. Dependent Variable: speaking