Research Paper

Depth of Vocabulary, Morphology, and Inference Making as Predictors of EFLs Pragmatic Knowledge

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Abstract
Pragmatics is described as the use of language appropriately in diverse and real circumstances to achieve various communicational goals. Despite the significant importance of pragmatic knowledge, second/foreign language learners have been reported to lack acceptable levels of pragmatic competence. To optimize pedagogical techniques implemented in second/foreign language classrooms and increase levels of pragmatic knowledge among second/foreign language learners, component skills that explain variations of pragmatic knowledge need to be delineated. To address the area, 33 Iranian upper-intermediate foreign language learners, having been screened through Venture placement test, were tested in terms of size and depth of vocabulary knowledge, morpho-syntax knowledge, inference making as independent variables, and pragmatic knowledge as dependent variable. Results from linear regression analysis indicated that depth of vocabulary, morphological knowledge, and inference making ability contribute to pragmatic knowledge, with the depth of vocabulary knowledge being the most powerful predictor. However, the model explained less than 40 percent of pragmatic knowledge. It indicated that pragmatic knowledge is

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complex. Although mastery over this set of cognitive-linguistic skills can be used as a tool to disentangle semantic clues in different contexts, teaching such cognitive-linguistic and metalinguistic skills can only partially meet the learners' need to master pragmatic knowledge. Pertinent suggestions and implications for the second/foreign language classrooms are discussed according to the obtained results.

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1. Introduction

Pragmatics is defined as the appropriate use of language in various authentic contexts to reach different communicational purposes. Pragmatic knowledge is necessary to avoid communicational misconceptions and to enable language users to distinguish underlying from surface meaning and also discriminate linguistic functions such as making a request, suggestion, refusal, or an apology (Bardovi-Harlig, 2013; Bardovi-Harlig, & Mahan-Taylor, 2003; Kasper & Rose, 2002; Mey, 2001). Pragmatic knowledge has also been seen as an important feature of understanding how to communicate in a second language, and as part of a recognition of the cultural norms of a context where a second language may be used (Bardovi-Harlig, 2013; Bardovi-Harlig, & Mahan-Taylor, 2003).

Pragmatic knowledge is multifaceted and comprises micro- and macro-level skills. Micro-level skills are text-based skills such as vocabulary and grammar knowledge in addition to morphological awareness to detect visible linguistic structures and decode meaning of the negotiated idea. Macro-level, on the other hand, refers to text-free skills such as inference making that enables language users to monitor contextual elements (e.g., degrees of formality of the discourse) and cultural values (e.g., suitable discourse for

different genders) in order to create a mental representation of the negotiated idea (Srisang & Everatt, 2021). Combining these levels distinguishes pragmatic knowledge from other linguistic extensions, such as syntax and semantics, that consider language in isolation (Cummings, 2010; Mey, 2001; Taguchi, 2008). Multidimensional nature of pragmatic knowledge demonstrates that it is in association with linguistic and metalinguistic components (Crossley & McNamara, 2012; McCutchen & Stull, 2015; Nassaji, 2007; Yuill & Oakhill, 1991). Thus, these component skills need to be delineated to let those involved in second language education include them into the materials.

Research has highlighted competency of second language learners and teachers in vocabulary knowledge and syntax, while their pragmatic knowledge is not satisfactorily developed and is not matched with their proficiency level (Bardovi-Harlig, 2018; Garcia, 2004; Kasper & Rose, 2002). On the other end of the spectrum, a few research projects have reported associations of linguistic and metalinguistic skills with pragmatic knowledge (Xiao, et al., 2019). However, it is acknowledged that even highly proficient second language learners still differ from native speakers in terms of pragmatic competence (Taguchi, 2008).

Contextual and cultural factors, such as degrees of formality, required degrees of respect, and background knowledge about the topic of the discourse, are the main constituents of pragmatics; such factors impose semantic constraints on word choices and orders and make it challenging for second language learners to distinguish underlying from surface meaning in authentic context (Erton, 2018; Kasper & Rose, 1999). These factors are not separable from the authentic language use and play an important role in comprehending negotiated ideas and participating effectively in discourse. Language users need to incorporate knowledge of these factors to their

knowledge of vocabulary and grammatical structures to be able to communicate effectively, without misconceptions (McConachy, 2021).

A number of factors are listed as contextual and cultural factors in definitions offered for pragmatic knowledge (e.g., Bauler, 2022; Lee, 2021; McConachy, 2021) but studies working on skills contributing to variations of pragmatic knowledge are scarce. To address the area, the current study elaborates on the constitutes of pragmatics and its significance in second language context and examines the association of pragmatic knowledge with text-based and text-free skills to determine its component skills and clarify a model for pragmatic knowledge of second language learners.

2. Literature Review
2.1 Pragmatic Knowledge
Generative transformational grammar provided a new perspective toward linguistic components. This theory of linguistics did not add a new component to language, but rather accepted the interrelationship of linguistic and meta-linguistic components, and instead of taking snapshots of language in use, it offered perspectives to include contextual features of language use (Mey, 2001; Lee, 2021). As a result, pragmatic knowledge came to existence to take proactive nature of communication into consideration.

Pragmatic knowledge makes an attempt to shift away from investigating language and its use in strict isolation through syntax and semantic lenses. This extension of linguistic components studies the way human beings utilize the language in social communication and considers the ongoing nature of the interaction between producer and recipient (i.e., interlocutors) of the language (Kasper & Rose, 2002; Tsuchiya, 2021). This linguistic perspective encompasses cognitive, psychological, and social aspects of the language use by providing a reasonable account for language behaviour (McConachi, 2021; Mey, 2001). Being equipped with pragmatic knowledge, interlocutors

can evaluate authenticity of the language, manipulate each other during communication, and even take control of the outcome of their communication (Bardovi-Harlig, 2013; Bardovi-Harlig & Mahan-Taylor, 2003; Sarani & Malmir, 2020).

Mastery over pragmatic knowledge guarantees the most appropriate choices that make sense in negotiating meaning. Therefore, communication would not be misled, and social embarrassments and predicaments can be avoided (Bardovi-Harlig, 2020). In the light of the foregoing, the best way to properly handle illocutionary actions and play a proper role in social, academic, and even political interactions can be equipped with pragmatic knowledge (Bardovi-Harlig, & Mahan-Taylor, 2003). All these advantages in language use revolve around being aware of social and contextual issues that vary from individual to individual, from a community of language users to another community and from language to language (Bauler, 2022). The context in which language is produced assigns appropriate value to the utterance and clarifies ambiguities. This fact demonstrates that intended meaning can be deciphered by considering common rules that are accepted within a community that a language is regularly used. Pragmatic knowledge appreciates the significance of context in determining the suggested meaning and provides a user-oriented perspective toward language and language use (McConachi, 2021; Mey, 2001).

One of the main components or constructs of pragmatic knowledge that distinguishes this perspective from semantics is context (Bardovi-Harlig, 2018; Bauler, 2022; Lee, 2021). Semantics investigate meaning of utterances regardless of the pertinent context; however, contextual factors are considered important in pragmatics. According to principals of pragmatics, meaning of discourse can be decoded and interpreted more effectively in relation to the context. In fact, when context is considered, best lexical items

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and grammatical rules would be selected from among the existing words and codes in an individual's memory. As a result, conventions of a language community are applied, accepted linguistic forms would be produced, and contextual disruption and violations of conventions would be avoided (Kasper & Rose, 1999; Kasper & Rose, 2002).

This roughly recent linguistic perspective, which goes beyond the knowledge of grammar, form, and vocabulary, comprises functional and contextual features of language and studies the way humans use their language in social communication rather than isolated structures (Kasper & Rose, 2002; Sarani & Malmir, 2020; Tajeddin & Bagherkazemi, 2014). Pragmatic knowledge is not a unitary construct and easy to measure. Since it encompasses various linguistic, psychological and even contextual factors of discourse. Pragmatic knowledge can be investigated and measured by being divided into levels. Initially, this aspect of linguistics is divided into two levels of micro and macro pragmatics (Mey, 2001; Taguchi, 2008; Tsuchiya, 2021).

Micro-level of pragmatic knowledge comprises internal features of languages. These features consist of language-inherent features like phonemes, words, and sentences. In fact, they refer to the linguistic, text-based components that are visible. These components are easier to learn, retain, and also measure since they are rule-based (Mey, 2001; Tsuchiya, 2021; Yule, 1996). To address components of micro-level and text-based linguistic skills, lexical resources from both aspects of breadth and depth along with morpho-syntax knowledge are suggested to be assessed (Erton, 2018; Mey, 2001; Rattanaprasert & Aksornjarung, 2014). It has been argued that vocabulary and grammar knowledge accelerate retrieving linguistic conventions through identifying relationships between words and recognition of references within a text (Erton, 2018; Mey, 2001). Moreover,

morphological awareness can contribute to more appropriate selection of words and adjective and adverb making affixes. This extension of knowledge is suggested to facilitate recognizing contextual features of a text. For example, derivational morphemes indicate the time period about which discourse is made, or inflectional morphemes that make adjectives indicate descriptive nature of discourse (De Swart & Farkas, 2010).

On the other hand, macro-level of pragmatic knowledge comprises external features of languages. These features consist of text-free, metalinguistic components. Macro-level components require language users to monitor text-free items and infer underlying and implicit relations between words, sentences, paragraphs, and contextual factors. Mastering this level, language users can process the intended meaning and formulate accurate presuppositions (Bardovi-Harlig, 2013; Taguchi, 2008; Tsuchiya, 2021). Resources with potentials to accelerate this level lay in metacognition and as a result, are harder to measure.

The complexity in this area calls for further investigations to disentangle components of macro-level of pragmatics. To embark upon constituent skill of macro-level, current project suggests examining inference making. Inference making refers to reading between the lines, making connections, and drawing conclusions about the text's meaning and purpose. It also requires the ability to connect one's relevant background knowledge (not one's presuppositions) to textual and contextual factors of a text to decipher the suggested meaning (Cain et al., 2004; Freed & Cain, 2017). In fact, when pieces of a text are brought together to draw conclusions and ensure understanding, comprehension monitoring is happening (Cain et al., 2004). Since this metalinguistic skill resembles what macro-pragmatics requires, current study proposes that inference making might explain pragmatics at macro-level.

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Inference-making ability enables language user to take advantage of metalinguistic elements such as related background and cultural knowledge that surround the discourse to compensate lack of vocabulary knowledge and guess the meaning of unfamiliar words (Aryadoust & Baghaei, 2016; Srisang & Everatt, 2021). Then, by making connections between pieces of information gathered from different points of the discourse, the user is able to compare them against his prior knowledge and decipher the real meaning of the negotiated idea. Not only does this ability play a significant role in language comprehension, it enables the language users to have more effective participation in discourse due to comprehending the intended meaning (Zhou & Wei, 2018).

Considering both levels, it can be argued that micro-level skills are fixed and pre-determined, regardless of the place and context that the language is used in, while macro-level skills are more likely to vary from condition to condition and from one social and cultural context to the other (Cummings, 2010; Lee, 2021).

Given the importance of pragmatic knowledge in negotiating the meaning, mastery over this linguistic perspective is necessary to avoid communicational misconceptions in both first and second language. However, research has highlighted that dominating this area is more challenging for second and foreign language learners and that their linguistic production and perception is pragmatically different from native speakers (Bardovi-Harlig, 2013; Lyssenko, 2019). For example, second and foreign language learners have been reported to be more competent in processing explicit, text-based linguistic items such as lexical items and syntactic rules, while they perform less competently in recognizing text-free, metalinguistic features in authentic communications (Bardovi-Harlig, 2013; 2019; Li et al., 2012).

2.2 Speech Acts

Given the reported weakness of foreign and second language users in pragmatic knowledge (Bardovi-Harlig, 2018; Garcia, 2004; Kasper & Rose, 2002), it has been argued that second or foreign language users from different cultural backgrounds rely on their native social, cultural and pragmatic standards while communicating. As a result, areas of communication such as turn taking, directness, pacing, pausing and intonation would be meaningfully affected. Therefore, communicational expectations would not be met and misinterpretations occur (Boxer, 2002; Kasper & Rose, 2001). Such misunderstandings increase several concerns in social, academic and occupational interactions; for example, issues like hurting people's emotions, imposing your ideas and making wrong judgments (Brown & Yule, 1983; Shams & Afghari, 2011).

Explained misinterpretations can happen in various situations like thanking, requesting, complimenting, etc. (Cummings, 2010; Spencer-Oatey & Jiang; 2003). In every situation, language users utilize words and sentences to convey a set of messages. In fact, chosen words are to perform activities that can be divided to several categories based on their content; for example, request, promise, suggestion, acceptance, refusal, apology and gratitude. Such a power of words to perform activities is called speech acts that have power of making changes in the fellow of communication in real world (Bauler, 2022; Brown & Yule, 1983; Mey, 2001; Taguchi, 2008).

Considering cultural and contextual factors at the time of selecting words and uttering a sentence would lead to the production of socially and contextually appropriate set of words that have potential to express our intention and make others do our desired actions and reactions. For instance, depending on the formal or informal context of communication, or depending on genders involved in conversations, different cultures may prefer different

surface structures (e.g., interrogative or declarative structures) to convey desired meaning (Bauler, 2022; Shams & Afghari, 2011). Producing words and sentences, conveying intended meaning, and influencing language consumers (i.e., hearers or readers) as it is desired, are all functions and forces that are defined in speech acts. They are also important in language perception; in fact, the appropriate and intended meaning is understood when cultural and contextual factors are considered (Bardovi-Harlig & Hartford, 1993; Brown & Yule, 1983). This is why speech acts are highly recommended to be used in pragmatics assessments (Spencer-Oatey & Jiang; 2003).

2.3 Previous Studies

Pragmatic knowledge has been reported as complex and multifaceted construct of language. Linguists and sociolinguists have always provided definitions for this construct, relied on their expertise to cast light on levels of pragmatic knowledge and its component skills and always emphasized on its importance in language learning and particularly in second or foreign language learning context. Being concerned with the significance of pragmatic knowledge, several studies addressed second language users' knowledge of speech acts and compared their performance with native language users (e.g., Bardovi-Harlig & Hartford, 1993; Nemati et al., 2014). They mainly concluded that there is a meaningful difference between performance of second or foreign language learners with that of native language users in terms of speech acts. However, researchers of the field scarcely attempted to delineate the component skills that contribute to knowledge of pragmatics to be able to address the needs of second or foreign language learners. These skills can be incorporated to the second or foreign language teaching materials to approximate learners to the performance of

native language users in terms of pragmatic knowledge (Bardovi-Harlig, 2020).

In order to more specifically investigate pragmatic knowledge, a number of researchers sought for relationships between this construct and language skills. For example, Behroozizad and Bakhtiyarzadeh (2012) examined the relationship between pragmatic knowledge and reading comprehension among EFL learners. They found no meaningful relationship between these two constructs; however, the utilized instruments did not seem enough to measure all aspects of reading comprehension and pragmatic knowledge to assess the correlations and prediction power of linguistic, cognitive and cultural components. In addition, Xiao et al. (2019) assessed whether linguistic proficiency skills contribute to variations of pragmatic knowledge. They accredited that speaking and listening can explain most of variation in pragmatic knowledge rather than writing and reading. This project can be considered a significant move toward delineating component skills that contribute to variations of pragmatic knowledge, but still there are subskills that can be addressed to more specifically clarify components of pragmatic knowledge.

Although a number of recent studies (e.g., Sarani & Malmir, 2020; Zhang & Papi, 2021) attempted to address predictors of pragmatic knowledge, they tended to investigate psychological factors rather than linguistic and metalinguistic ones. For example, Sarani and Malmir (2020) examined the potential relationship between multiple intelligences (verbal, interpersonal, intrapersonal, logical, naturalistic, musical, existential, visual, & kinesthetic intelligences) with pragmatic performance and use of speech acts. They concluded that verbal, interpersonal, intrapersonal, logical contribute to levels of successful use of speech acts. In another attempt Zhang and Papi (2021) found that type of intrinsic motivation driving inner forces

for activities leading to achievement and growth can positively contribute to pragmatic competence, while the type of intrinsic motivation driving inhibitory inner forces in case of embarrassments and predicaments negatively contribute to pragmatic competence. Despite the great contribution of these studies to the field by casting light on phycological factors playing role in developments of pragmatic knowledge, linguistic and metalinguistic components still need to be investigated.

Therefore, importance of pragmatic knowledge in expressing the intended meaning in language production and determining appropriate meaning in language perception inspired the current research. Also, second language learners' reported challenge with pragmatic knowledge joined with dearth of research in this area, inspired the current research to cast light on linguistic and metalinguistic component skills that comprise pragmatic knowledge. Thus, the current research aims at investigating the potential relationship of pragmatic knowledge with text-based skills (i.e., breadth of vocabulary, depth of vocabulary, grammatical knowledge and morpho-syntax knowledge) and also with text-free skill (i.e., inference making) among second language learners. This way, those skills that may more importantly contribute to pragmatic knowledge can be addressed. Given that two levels (micro and macro) of pragmatic knowledge were reported to have several aspects, it worth investigating potential relationships between all these subskills and pragmatic knowledge. In order to investigate the relationship between these areas, following research questions are formulated:

1. Is there any significant relationship between pragmatic knowledge and micro level skills (i.e., breadth and depth of vocabulary, grammar knowledge and morphological awareness)?
2. Is there any significant relationship between pragmatic knowledge and macro-level skills (i.e., inference making)?

3. Method

This study aims at investigating the potential relationship between pragmatic knowledge and cognitive- and metacognitive-linguistic skills reported to comprise micro- and macro-levels of pragmatic knowledge. Therefore, the design is an exploratory, descriptive one that allows seeking associations between variables. When there are a few or no previous studies, research or reports to refer to the designed research question, descriptive design is recruited. The aim of this design is to obtain perception and awareness for upcoming or future investigation when the research problems are in their primary stages of investigation. It also aims at generating the new ideas and hypotheses, direct for future research and techniques or the feasibility of the study in future (Larson-Hall, 2010).

3.1 Participants

In order to probe the formulated research questions, 40 English language learners were asked to take part in the project as participants through convenient sampling. Since pragmatic knowledge is believed to be mastered in higher levels of English proficiency, the study could not include all participants into the study. To provide a basis for conducting the study on carefully-selected cohort, participants took Venture placement test version 1.0 (2009) to be screened in terms of English proficiency. According to instructions of the Venture test, scores equal to and higher than 33 indicate relatively high levels of English proficiency (i.e., upper-intermediate); thus, participants who scored equal to and higher than 33 were included in the study.

From the initial pool of 40 English language learners, 33 of them were proved to be at upper-intermediate level of proficiency and participated in the study. The cohort comprised both female (N=21) and male (N=12) learners, aged ranging from 18.05 to 36.08, with an average of 22.04.

3.2 Instruments

3.2.1 Pragmatic knowledge

a. Discourse Completion Task (DCT)

Discourse Completion Task (DCT) (Bardovi-Harlig & Hartford, 1993) ($\alpha > .76$) is an open-ended opportunity for ELLs to have their knowledge of speech acts assessed; particularly refusal speech act. There are 18 authentic communicational situations based on which a question is asked and test takers had 20 minutes to use their own wordings to provide an appropriate answer which goes in line with the primarily provided situation. All answers should contain kind of rejection; either through direct rejection (e.g., No, I cannot or I don't want to take), providing explanations (e.g., I have another class at the same time), alternative declaratives (e.g., I was thinking about taking Testing instead), alternative questions (e.g., Could I take Methods?), or an agreement followed by a rejection (e.g., Yes, but …). Every response that rejects the suggestion in one of the mentioned ways is acceptable.

b. Multiple Choice Discourse Completion Task (MDCT)

Multiple Choice Discourse Completion Test was developed by Nemati et al. (2014) and reliability index of the measure was reported ($\alpha > .72$). This test contains 20 context-sensitive Multiple-Choice Discourse Completion questions that are designed to assess pragmatic competence of EFL learners. To assess pragmatic competence, knowledge of speech acts is targeted in this test. The targeted speech acts included gratitude, request, suggestion, refusal and apology. Each test provides an authentic situation of communication that describes an event and a response to that; based on the situation a question is asked that test takers were supposed to select the best provided choice that would be pragmatically appropriate and acceptable in 20 minutes.

3.2.2 Vocabulary Knowledge

c. Vocab Size Test

The vocabulary size test, developed by Nation and Beglar (2007) ($\alpha >$ .81), contained 60 items that covered the 6000 frequent English words at six levels beginning from the first 1000 frequent words comprising 10 items for each level. The difficulty of the test items increased towards the end of the test. The Vocabulary Size Test, which measures words known rather than words learnt, uses a stem plus a 4-choice multiple-choice format. The item stem consists of the word followed by a very simple non-defining sentence containing the word. The non-defining sentence has the roles of a) indicating the part of speech of the word, b) limiting the meaning of the word, and c) slightly cueing the meaning by presenting an example of use. Participants had 20 minutes to do the test.

d. Depth of Vocabulary Test

The vocabulary depth test (Read, 2000) ($\alpha >$ .77) is rendered to evaluate knowledge of words in linkage with other words. This is test of how well commonly used words are known and comprises 40 items; each item consists of a stimulus word and is followed by two boxes containing four words; words in the first box might be meaningfully linked with the stimulus, and presented words in the second box might be chosen as stimulus' collocations. From the two boxes, four relevant words to the stimulus word should be chosen in 20 minutes.

3.2.3 Knowledge of Grammar

e. Grammatical judgment test

Grammatical Judgment test is taken from TOEFL preparation book "vocabulary and grammar for the TOEFL test" (Wisniewska, 2013) ($\alpha >$ .68). The test contains 20 multiple choice questions and participants had 20 minutes to do the test. The test comprises two parts. Part one includes 12

questions and participants were to recognize grammatical mistakes. Each item consists of a sentence with four underlined words that one needed to be chosen as a mistake. In the second part of the test participants were supposed to decide whether words are fit within the sentences grammatically appropriate or not. This part includes eight sentence completion multiple choice questions.

3.2.4 Morphological awareness

f. Morphological Awareness Task (Generative & Receptive)

The generative and receptive morphological tests, developed by McNeill and Everatt (2013) *(α > .73),* were used in the current research to assess participants' morphological knowledge. Each test comprises 30 items and assesses the participants' familiarity with morphemic units. In the generative task the participants were required to change the word formation of a given stimulus to complete the sentence. In the receptive test the participants were required to distinguish if the two given words were from the same family or not. Both tests include practice items at the start to show the participants what they were expected to do, and both were written, rather than spoken. Participants were given 15 minutes to complete the receptive task and 15 minutes to complete the generative task.

3.2.5 Inference making

g. Inference Making Reading Comprehension

Inference making test was developed by Srisang (2017) and was used in her doctoral dissertation that assessed the influence of inference making on reading comprehension among adult Thai ELLs. Reliability index of the measure was reported (α > .64) and it was used in the current project. The test contains seven short- to medium-length stories about what people do in their routine lives and each text is followed by five multiple choice questions. To

answer the questions, participants had 30 minutes to read between the lines and draw conclusions. In fact, answers could not be found directly in one sentence; relationship between facts presented in different sentences needed to be discovered and then questions could be answered.

3.3 Procedure

Having specified measurements based on the linguistic and metalinguistic skills that might potentially explain variations of pragmatic knowledge, participants were selected through convenient sampling, and 40 English language learners were asked to participate in the study. Since pragmatic knowledge has been reported to be mastered in higher levels of language proficiency, participants were screened through taking the Venture placement test, and those proved to be at an upper-intermediate level were included in the study (i.e., 33 language learners).

Then, two sessions were arranged with the participants to administer the tests. Tests of pragmatic knowledge and vocabulary were taken in the first session, and tests of grammatical judgment, morphological awareness, and inference making were administered in the second session. Administering the tests in separate sessions avoided participants' fatigue interfering with their performance. After collecting the participants' responses, the aggregated data were fed into SPSS software for statistical analysis.

3.4 Data Analysis

As the first step in data analysis, descriptive statistics were calculated to obtain mean scores, standard deviations, and score ranges. The statistics at this level clarify whether there are ceiling or floor effects and whether scores are normally distributed. As the second step, correlations between measures were calculated to a) ensure correlations between the test scores that measure the same skill and b) foresee the potential relationships between the skills measured in the study. Finally, linear regression analysis was run to examine

each skill's degree of contribution to pragmatic knowledge. The regression analysis allows for estimating the percentage of independent variables' contribution and provides an opportunity for delineating a model for pragmatic knowledge.

4. Results and Discussion

The current study aimed to delineate a model for pragmatic knowledge of Iranian English language learners. To this end, a range of linguistic and metalinguistic skills (i.e., independent variables) was measured to examine their relationship with pragmatic knowledge (i.e., dependent variable) which was tested through two tests of DCT (Discourse Completion Task) and MDCT (Multiple Choice Discourse Completion Task). Knowledge of breadth and depth of vocabulary, receptive and productive morphology, and grammar were tested as linguistic or text-based skills; and inference making was tested to represent metalinguistic or text-free skills. Having tested the power of prediction for mentioned linguistic and metalinguistic skills through regression analysis, meaningful relationships between pragmatic knowledge and all measured skills were detected.

In order to examine the obtained results and answer the research questions, descriptive data from measures are first demonstrated (see Table 1), correlations are presented (Table 2) and then, regression models are presented (Table 3). Given the participants' performance in tests, means scores and standard deviations show that scores are normally distributed and no ceiling or floor effect is observed. Therefore, the scores can be proved as reliable ground for further statistical analyses.

Table 1
Descriptive Statistics

	Vocab.		Morpho.	Grammar	Inference	Pragmatic Knowledge	
	Breadth	Depth				MDCT	DCT
Total Score	60	160	60	20	35	20	18
Mean	37.93	90.84	49.78	11.41	23.68	10.63	11.68
SD	7.50	21.22	7.47	3.11	3.82	2.78	3.91

Vocab: Vocabulary, Morpho: Morphological Awareness, Grammar: Grammatical Judgement

Prior to working on regression models, correlations should be calculated to further scrutinize whether measures work properly. In fact, the tests that measure the same skills should be significantly and meaningfully correlated to show they are working precisely.

Table 2
Correlations

Measures		Vocab.		Morpho.	Grammar	Inference	DCT
		Size	Depth				
Vocab.	Size						
	Depth	.61**					
Morpho.		.33**	.24*				
Grammar		.44**	.44**	.33**			
Inference		.21**	.27*	.12	.32**		
Pragmatic Knowledge	DCT	.41**	.47**	.32**	.21*	.32**	
	MDCT	.32**	.25*	.28*	.29*	.26**	.41**

Note: ** ($p < .01$), * ($p < .05$)

According to correlations, vocabulary size and depth of vocabulary tests, which both measured knowledge of vocabulary, are significantly correlated ($p < .01$). Also, Discourse Completion Task (DCT) and Multiple-Choice Discourse Completion Task (MDCT), which both measured pragmatic knowledge, are meaningfully correlated ($p < .01$). In addition, significant correlations between all measures of the study and measures of pragmatic knowledge indicate their potential power to explain variations of pragmatic

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knowledge. However, linear regression analyses (shown in Table 3) exactly examine the meaningful relationship between the dependent variable (i.e., pragmatic knowledge) and the independent ones (i.e., vocabulary knowledge, morpho-syntax knowledge, and inference making). Also, these analyses show which skills can meaningfully contribute to levels of pragmatic knowledge.

Table 3
Linear Regressions Model Summery for Pragmatics

	DCT		MDCT	
	R^2 change	p-value	R^2 change	p-value
Age & Gender	2.8	.36	3.3	.31
Vocabulary	23.7	.00	13.6	.00
Morpho-Syntax	7.9	.05	8.6	.05
Inference Making	5.2	.02	3.7	.05
Total Variability	39.6		29.2	

According to regression analysis for measures of pragmatic knowledge, knowledge of vocabulary, morpho-syntax knowledge and inference making ability can explain variations of pragmatic knowledge to some extent. Among the three skills, vocabulary knowledge is the most powerful predictor and comprises the greatest portion of total variability explained by the model. Given its greater beta value in both regression models (.27 and .32) in comparison to vocabulary size (beta: .15 and .21), depth of vocabulary knowledge plays a more important role in explaining variations of pragmatic knowledge. Then, there is morpho-syntax knowledge as the second powerful predictor. Given the size of beta value in both models, morphological awareness (beta: .46 and .41) in comparison to syntax (beta: .22 and .07) is more significant in creating such a relationship. Finally, inference making ability is found as the third predictor of pragmatic knowledge.

However, models predicted 39.6% and 29.2% of pragmatic knowledge tests, which is pretty low and indicates the fact that measured skills comprise

only a small proportion of pragmatic knowledge. Since linguistic skills with potentials to explain variations of pragmatic knowledge were tested and proved to comprise small proportions of pragmatic knowledge, meta-linguistic skills, except for inference making ability, might be known more responsible to explain variations of pragmatic knowledge.

In the resulted model, firstly, it was revealed that vocabulary knowledge is the most powerful predictor of pragmatic knowledge, specifically, knowledge of the depth of vocabulary. This type of knowledge refers to well-developed awareness of different facets of a word such as its different meanings in different contexts, its connotations, its collocations, and its semantic relationship with other words. In fact, an individual who develops knowledge of appropriate use of lexical items in a semantically meaningful relationship is able to create a smooth transition of ideas within a text (Meara, 1996; Read, 2000). Also, higher levels of depth of vocabulary knowledge enable individuals to consider the context in their vocabulary choice and choose the right synonymous alternatives. As a result, linguistic conventions are more likely to be observed while production and the language produced would seem more natural (Cain & Oakhill, 2018). Thus, relationships between depth of vocabulary knowledge and pragmatics can be justified. Since the depth of vocabulary knowledge highlights the importance of the relationship between linguistic items and the context, and pragmatic knowledge requires language users to use linguistic items according to their function, and in relation to the context, depth of vocabulary knowledge can play an important role in developing healthy and robust knowledge of pragmatics (Mey, 2001).

Additionally, the resulted regression model indicated the prediction power of morpho-syntax knowledge for pragmatics, specifically, morphological awareness. This type of knowledge refers to mastery over the

smallest meaningful units of language which include word roots, morphological bounds, and the role of affixes in grammatical derivations. Developing a fair amount of morphological knowledge provides language users a tool to know how plural making morphemes, morphemes of gerund and past tenses can affect the context by determining the number of involved entities in a given text and also the timing of events (Spasovski, 2012). Also, adjective and adverb maker morphemes can clarify the descriptive nature of the discourse and help language users to discover the objectives of the discourse and then, the context to some extent. Additionally, knowledge of morphemes and how they form nouns, adjectives, verbs, and adverbs facilitates the right linguistic choices depending on the intention of language users. As a result, language users are more likely to maintain linguistic conventions while producing language (Farkas & De Swart, 2010). It has also been claimed that morphological knowledge increases levels of attention to retrieving the role of words within a text and therefore, detecting semantic clues. Such levels of attention to the smallest meaningful units that mark meaning, semantic and syntactic roles, and discourse objectives increase the opportunity for language learners to use language appropriately in a given context (Taguchi, 2008).

According to the findings of the current research, inference making skill can also contribute to variations of pragmatic knowledge. Inference making skill refers to well-developed logical thinking and reasoning. This type of metalinguistic skill enables language learners to effectively use premises in the discourse and move forward and backward within the text to detect the semantic relations (Savic, 2018). By doing so, language learners can draw conclusions based on either the provided details or from the general facts. In fact, inference making necessitates induction and deduction. Thus, those who are equipped with inference making skill appreciate the importance of clues,

semantic references, and context. These language users can produce meaningful language which is coherent as a whole, and also comprehend discourse considering the context. In other words, mastery over inference making avoids considering language in isolation and promotes awareness of context (Cain, 2009; Perfetti, 1985). Therefore, developing acceptable levels of pragmatic knowledge would be facilitated.

The findings of the research suggest some implications for developing pragmatic knowledge of second language learners. According to the linguistic and metalinguistic skills that were found in relationship with pragmatic knowledge, clarifying semantic relations between lexical items, promoting awareness of morphemes' roles in determining the timing of the discourse as well as some of its objectives, and teaching logical reasoning through considering semantic clues within the context of the discourse can accelerate awareness of context. In case English as a second language syllabus designers incorporate these skills into second language teaching material, second language learners are more likely to grow more sensitive about context, and also consider contextual clues in their linguistic productions (Taguchi, 2008). Additionally, second language teacher educators can highlight the importance of teaching language in context rather than teaching isolated linguistic units, the importance of emphasis on the semantic relations that can be discovered in the discourse, and the role of semantic relations in the meaning of negotiated ideas. Thus, second language teachers would be aware of the reasons for incorporating context awareness into the materials and would be able to appropriately guide second language learners to use language effectively (Spasovski, 2012).

However, the model presented in the current research can only predict less than 40% of pragmatic knowledge. It indicates that there are other linguistic and metalinguistic skills with the potentials to contribute to

variations of pragmatic knowledge. For example, executive functioning has been defined as the ability to regulate the coordination of mental function in goal-directed behaviors. This metacognitive ability comprises skills that require focused attention on tasks. Working memory and inhibitory control have been reported to be the main components of executive function. Working memory contributes to retaining and updating linguistic and contextual information, while inhibitory control keeps the person alert and prevents one's suppositions to interfere with the suggested meaning, and controls accurate reasoning (Matthews et al., 2018). Thus, skills comprising executive functioning can be measured and tested in future studies to examine their possible relationship with pragmatic knowledge.

5. Conclusion and Implications

According to the findings of the study, depth of vocabulary knowledge, morphological awareness, and inference making explain variations of pragmatic knowledge to some extent. This level of contribution is due to the significance of such skills in raising sensitivity about context. In fact, these skills provide tools and strategies for second language learners to appreciate semantic clues and detect them throughout the discourse to comprehend the produced language in relation to the context and also consider semantic and contextual clues to connect pieces of information within the discourse to produce language appropriately.

As a result, teaching dissected cognitive-linguistic skills cannot be helpful to increase second or foreign language learners' pragmatic knowledge. Rather, second or foreign language teachers need to use techniques, and also plan for activities and tasks that emphasize the interrelationship between linguistic skills (Bardovi_Harlig, 2020). For example, when learners know how to use morphological knowledge to predict the grammatical role of words and the immediate atmosphere of the

conversation, they would be more motivated to master this linguistic skill (Farkas & De Swart, 2010). Thus, they are more likely to learn it effectively because they would find it useful for achieving their ultimate goal, which is successful communication (Aryadoust & Baghaei, 2016). Also, when learners recognize the importance of context for selecting different words over memorizing long lists of vocabulary items, they can see a bigger picture of language learning. They learn that vocabulary items in isolation cannot help them improve their linguistic performance in an authentic context and realize what successful communication needs (Bardovi_Harlig, 2013).

Such considerations in second/foreign language teaching can be joined with out-put based activities, which are proved to increase the efficiency of teaching pragmatics and long-term retention of pragmatic conventions (Tajeddin & Bagherkazemi, 2014). In case second/foreign language learners are made to use the language to achieve specific communicational goals in classroom, they would be more likely to retain the conventions for the longer time, and thus, they would be more likely to use pragmatic conventions effectively to communicate in authentic contexts.

Second or foreign language teachers need to clarify and explain the ultimate goal of language learning to teach the learners how to blend the skills and take advantage of them in the authentic context and communicate successfully (Bardovi-Harlig, 2020). The importance of contextual function of linguistic productions should be emphasized in second or foreign language classes to help the learners stay away from learning dissected linguistic skills in isolation. This would lead second or foreign language learners from the superficial stage of language learning to deeper layers, where negotiating meaning, proper interpretation of linguistic productions, and appropriate use of language based on its function matter the most (Lee, 2021; McConachi, 2021).

Conflict of Interest

The current research paper has no conflict of interest with any academic and educational institution and was not funded by any organization. Also, the whole work was the genuine work of the authors.
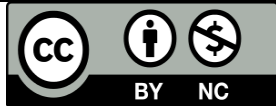
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