The Validity Study of L2 Knowledge Teaching Management Model: From the English Modal Verbs' Learning

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Abstract

This Article aimed to study the English teachers' practical application of the L2 (second language) teaching models, the valid relation between the language elements such as grammatical knowledge and pragmatic knowledge, grammatical form and grammatical meaning, and the constructs of pragmatical knowledge in order to get the validity of previous four L2 knowledge teaching models. And the article also aimed to study an effective L2 knowledge teaching model in the teaching management we should take in our college.

Faced the application-oriented universities' reform in the field of education management in China, the valid training of L2 knowledge is also become an important factor to our applied talents training. English modal verbs, as a difficult and flexible teaching content, are a focus for the validity of L2 knowledge constantly. For that, we choose 517 Chinese sophomores and 20 professors in Taiyuan Institution of Technology randomly. Through two instruments of General Grammar Test and English Modal Verbs Test, we collect valid data and analysis data by Descriptive statistics and Content Analysis as questionnaire with an in-depth interview and SEM (Structural Equation Model). We find all the previous four models of L2 knowledge examined with respect to English modal verbs are generally adequate. We also have devised a more parsimonious and more explanatory model of L2 knowledge i.e., the Trait-only Model and further examined its validity, which can be applied into our English teaching management.

Keywords: applied talents; grammatical knowledge; pragmatic knowledge

Introduction

The thesis aims to make a validation study of four major second language (L2, hereafter) knowledge models proposed by Canale and Swain (1980), Bachman and Palmer (1996), Larsen-Freeman (1991), and Purpura (2004) which are mow commonly applied into our L2 teaching

management, on the basis of which we also hope to bring a more parsimonious and more explanatory L2 knowledge model. The applied talents have become the development direction of most of colleges in China (Huang & Li. 2021). How to cultivate such talents and what kind of teaching management especially L2 knowledge teaching model is suitable and valid to our colleges have been urgent issues (Wang, 2022). Whereas, there are not still any relative studies about that although there are many researches on the teaching model based on the applied talents (Ying & Su, 2022).

Teaching should greatly promote the all-round development of our students (Xi, 2018, 2020). The L2 knowledge teaching is originally the topic in linguistics but it is also the integral aspects in the teaching management model. Hence, L2 knowledge teaching model in the teaching management based on the applied talents is our college development orientation and requirement and the design of teaching management especially L2 knowledge teaching model have been problem we should firstly resolve (Huang, 2019). The validity of study of L2 knowledge teaching management model and the construction of L2 knowledge is very crucial for our teaching managers and executors. We expect to find out an effective L2 teaching model to improve persons' language ability and give some reflection on the practical teaching management. However, there exists still controversy to identify the influence between grammatical and pragmatic knowledge, the interaction between grammatical form and meaning, and the constructs of pragmatical knowledge for English modal verbs, a focus for the validity of L2 knowledge.

Therefore, this paper explores three questions as what the practical application of the L2 teaching models is and how about the validity of previous four L2 knowledge teaching models, and then, what the effective L2 knowledge teaching model is in our teaching management.

Research Objectives

In accordance to the research questions, the thesis aims at three research objectives as:

1. Study the practical application of the L2 teaching models.

2. Study the valid relation between the language elements as grammatical and pragmatic knowledge, grammatical form and meaning, and the constructs of pragmatical knowledge.

3. Study an effective L2 knowledge teaching model in our teaching management.

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Literature Review

Since the early 1980s, competing views on the notion of 12 knowledge have appeared. Most issues focus on the components of L2 knowledge and the nature of the relationships among the components (Purpura, J. E. 2014). Applied linguists have put out a range of models of L2 proficiency theory (e.g., Bachman & Palmer, 1996; Purpura, 2004; Spolsky, 2009). Number of components, scope, and divisibility, grammatical and pragmatic knowledge, as well as unresolved problems, are all different in the various L2 knowledge models (Cheng, 2002).

Bachman and Palmer's (1996) asserted that grammar only functions at the sentence level. Other experts agree that grammar also functions at the language discourse level (e.g., Larsen-Freeman, 1993; Purpura, 2004). While an unconventional concept of grammatical knowledge is held by Bachman and Palmer (1996), plenty of other researchers (e.g., Larsen-Freeman, 1991; Purpura, 2004) argued that grammar proficiency could be viewed as a multi-component concept. Purpura (2004) claims that form and meaning of grammar—two closely connected but largely distinct elements—make up grammatical knowledge; whereas Rea-Dickins (1991) contends that these two elements might not be separate from one another. On the other hand, Larsen-Freeman (1991) argued that pragmatic knowledge also counts as grammatical knowledge besides form and meaning knowledge of grammar and these three interconnected yet distinct components are present in every linguistic system (Tong, X, Shirai Y. 2016). But many other researchers (such as Bachman & Palmer, 1996; Canale & Swain, 1980; and Purpura, 2004) believe that grammar does not adequately describe the social and practical uses of language but pragmatics does.

However, it has not yet been determined empirically how plausible these aforementioned models theories are compared to one another. As we know, English modality constitutes a difficulty area of second language acquisition (SLA) for Chinese English learners which are assumed mainly from the syntactic and semantic differences of modality between the two languages (Zeng, 1992). Most of researches approach the acquisition of English modals from a typological perspective (e.g., Li, 2003) or from a sociocultural perspective (e.g., Cho, 2003) or in the vein of learner's proficiency development (e.g., Dutra, 1998). Still others study English modal verbs from a semantic or syntactic point of view (Brennan, 1993; Kunz, 1999), but less studies have taken all the three dimensions into consideration in examining the order of English modals' acquisition so far. And even little research has been done on how Chinese learners acquire the

English modal verb meaning (Chang, Zh. Q. 2019), yet many details in teaching management system like designing textbooks and instructional materials would undoubtedly benefit from research in this area. Consequently, a study of Chinese learners' acquiring of English modals will contribute to the validation of L2 knowledge teaching management models.

In the latest decades, some studies on the Chinese learners' modal verbs acquisition mainly focus on grammatical form or accuracy in semantic meaning (Bai, 2015; Zhang, 2012). Only a few are concerned with both the form and meaning of English modal verbs (e.g., Enns, 1999;), and even none of these studies is concerned with pragmatic use (e.g., Werner, 2003). Moreover, none of these researches focus on all three dimensions: grammatical and meaning and pragmatic use (Han, 2011). They do not relate it to a more broadly conceptually theory of L2 knowledge. Cheng L. (2013) and Wang Y. & Cheng J. Sh. (2015) are some of the few who studies the nature of L2 knowledge by examining a specific linguistic category. Yet, pragmatic use is treated in a very narrow sense. This difference of Modality, rich in pragmatic information, may lead to different result in the examination of the nature of L2 knowledge. Additionally, there are not still much relative studies about the topic on the L2 knowledge teaching management model of the applied talents.

Though the four theories of L 2 teaching management methods have both similarities and different outstanding features, unsolved problems still remain to be addressed which lie in two aspects, one on the nature of grammatical knowledge, include: (1) whether grammatical form and meaning are related but empirically distinguishable components that constitute grammatical knowledge, (2) whether grammatical form and meaning are non-hierarchically related to each other or whether they are hierarchically related to their higher-order theoretical construct. The other on the specifics of how pragmatic and grammatical knowledge are related involves: (1) whether the nature of relationship between these two components of L2 knowledge is reciprocal or non-reciprocal, (2) whether there exists a hierarchical relationship among L2 knowledge as a higher-order theoretical construct and its grammatical and pragmatic components.
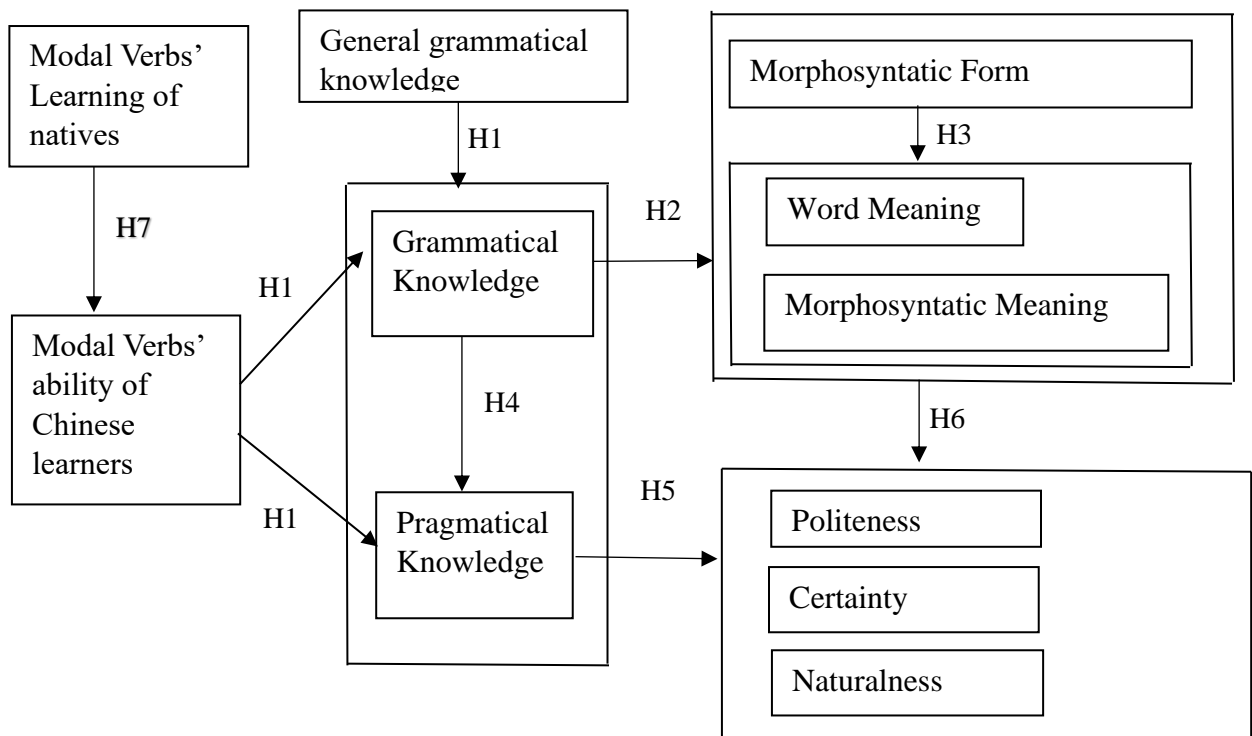
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Conceptual Framework

Applied talents' training includes all kinds of knowledge teaching managements which is a complex and diversified. The relation between these factors is shown in the following Figure 1. And the study has a conceptual framework in Figure 2 based on Canale and Swain's theory.
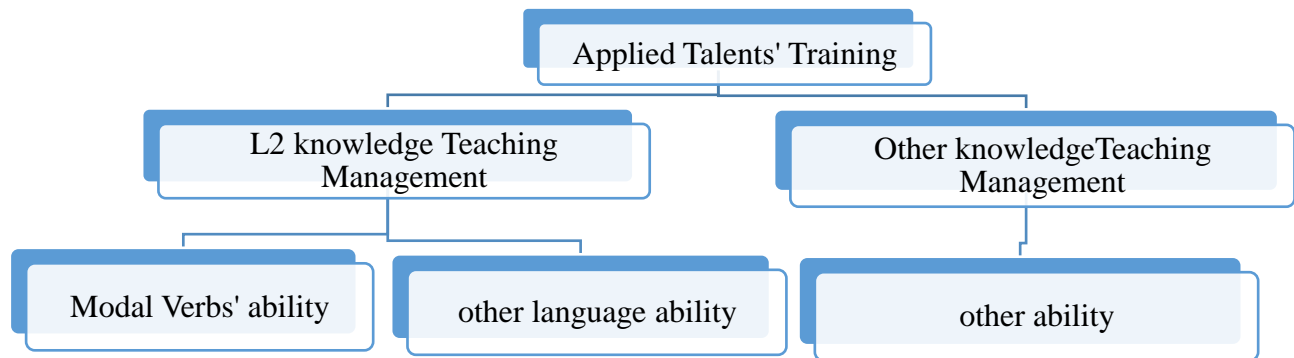
Figure 1 Relation between ability in applied talents 'training

Figure 2 Conceptual framework

Research Hypothesis

This research aims to test the following hypotheses:

H1: Specific grammatical knowledge is a much better indicator of specific pragmatic knowledge than general grammatical knowledge as far as specific pragmatic knowledge is concerned.

H2: Grammatical knowledge is a multi-componential construct.

H3: Grammatical form and grammatical meaning are closely related with, but distinct from, each other as two components of grammatical knowledge.

H4: The relationship between grammatical knowledge and pragmatic knowledge may be non-hierarchical and non-directional (reciprocal).

H5: Pragmatic knowledge of modal verbs should include both sensitivity to register (i.e. degree of politeness and degree of certainty) and naturalness.

H6: There may be a hierarchical relationship between the construct of L2 knowledge and its grammatical and pragmatic components.

H7: Chinese learners may not follow the learning order of native English speakers and they may behave differently on different dimensions (i.e., form, meaning, and use) of the theoretical model with regard to the acquisition of root modals and epistemic modals.

Research Methodology

The present study relies very much on quantitative data in the empirical survey which will primarily be addressed through the use of structural equation modeling (SEM). This study adopted two instruments: General Grammar Test and English Modal Verbs Test. The General Grammar Test aims to investigate the learners' general grammatical knowledge. The goal of the English Modal Verbs Test is to assess a student's specific grammatical and pragmatic knowledge of English modal verbs, including their grammatical form, meaning, and pragmatic application.

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Research Results

From Table 1 and 2, the value of R Square is 0.001 which suggests that approximately only 0.1 percent of the total variance in the pragmatic test scores is accounted for by this model. The results imply that general grammatical knowledge is of negligible predictive significance for pragmatic test scores (t=-0.237，p<0. 081). According to the results of the regression analysis, the value of R Square is 0.013, which means that this model only explains about 1.3 percent of the variation in the outcomes of the pragmatic test. Thus, the results imply that specific grammatical knowledge is of little predictive significance for pragmatic test scores (t=1.180, p<0.024).

Table 1 Univariate Regression Using General Grammatical Knowledge as Predicator of Pragmatic Knowledge (N=412)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.023(a)	0.001	-0. 009	1.68400

a. Predictors: (Constant), General Grammar Test

ANOVA[b] (N=412)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	0.159	1	0.159	0.056	0.081[a]
Residual	311.806	110	2.835		
Total	311. 964	111			

a. Predictors: (Constant), General Grammar Test

b. Dependent Variable: Pragmatic Knowledge

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6. 774	1.244		5.446	0.000
General grammar Test	- 0. 005	0.019	- 0.023	-0.237	0.081

a. Dependent Variable: Pragmatic Knowledge

Table 2 Univariate Regression Using Specific Grammatical Knowledge as Predicator of Pragmatic Knowledge (N=412)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.0112(a)	0.013	0. 004	1.67349

a. Predictors: (Constant), Specific Grammatical Knowledge

$$\textbf{ANOVA}^{\textbf{b}}\ \textbf{(N=412)}$$

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	3. 902	1	3. 902	1.393	0.024[a]
Residual	308. 062	110	2.801		
Total	311. 964	111			

a. Predictors: (Constant), Specific Grammatical Knowledge

b. Dependent Variable: Pragmatic Knowledge

$$\textbf{Coefficients}^{\textbf{a}}$$

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
2 (Constant)	5.093	1.188		4.288	0.000
Specific Grammatical Knowledge	0. 049	0.041	0.112	1.180	0.024

a. Dependent Variable: Pragmatic Knowledge

The goodness of fit summary for four models is shown in Table 3.

Table 3 Summary of Goodness-of-Fit Statistics for the Five Models

| Model	df	S-B$_{x2}$	CFI	AIC
Canale and Swain (1980)	20	32. 8571	0.961	7.143
Bachman and Palmer (1996)	14	22. 1726	0. 957	5. 827
Larsen-Freeman (1991)	19	29. 2846	0. 982	24.014

Purpura (2004)	32	88.0138	0.981	24.000
Hypothesized Trait-only Model	8	20.3118	0.982	4.016

We can see that the results of chi-square difference tests indicate that Larsen-Freeman's (1991) model might be a better representation of the data than Canale and Swain's (1980) model and Purpura's (2004) model fits the data almost equally well to Larsen- Freeman's (1991) model. This result means that the hypothesis that the correlation between grammatical form and grammatical meaning is 1.0 is rejected.

The trait-only model of L2 knowledge appears to be an excellent fit for the data, according to an analysis of the goodness-of-fit index: the S-Bx^2 is 20.3118 with 8 degrees of freedom and the CFI is 0.982. The NFI and NNFI have values of 0. 974 and 0. 971 respectively, according to a comparison of various fit indices, and the RMSEA is within the acceptable range. In short, all these overall fit indices provide strong support for the trait-only model of L2 knowledge which is empirically found to be valid. The Figure 3 is the path result.
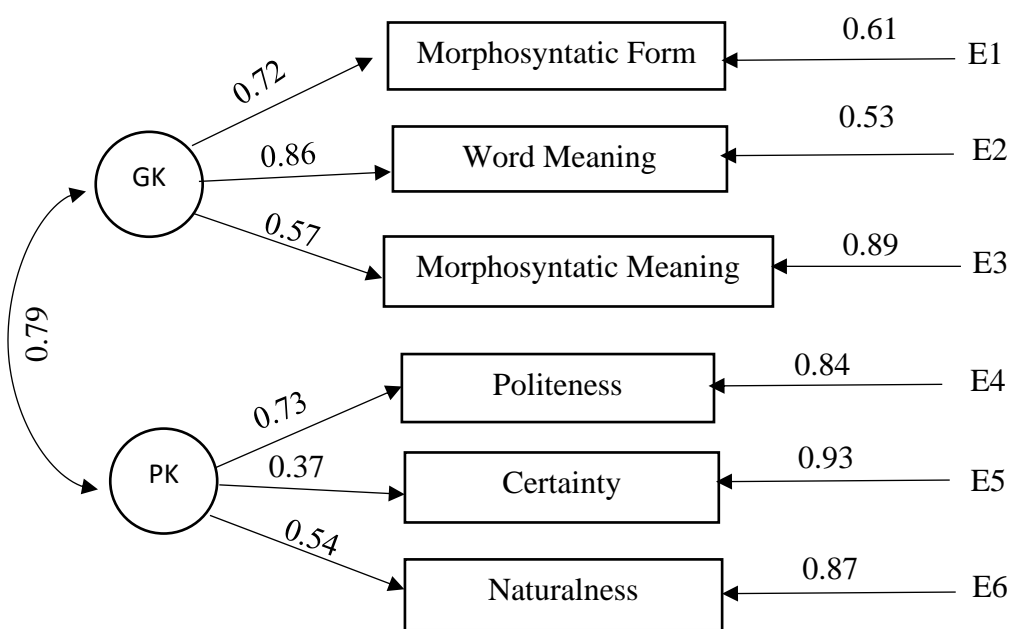
GK = Grammatical Knowledge   PK = Pragmatic Knowledge

Figure 3 Trait-only model of L2 knowledge with respect to Modal Verbs with standardized parameter estimates

The findings in Table 4 demonstrate that there is actually a sizable gap between the learners' abilities to learn the root meanings and the epistemic meanings (Sig.= 0.030 < 0.05). It suggests that our conclusion—that Chinese learners absorb English modals' epistemic meanings more readily than their root meanings—is accurate

Table 4 Paired Samples Test for Root and Epistemic Meanings

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
0.0468	0.2247	0.0212	0.0047	0.0889	2.203	111	0.030

Discussions

According to the two regression studies, pragmatic understanding of English modal verbs is more likely to be predicted by specialized grammatical knowledge than by general knowledge (t =1.180, p < 0.024); whereas general grammatical knowledge is of much less predictive power (t = - 0.237, p < 0.081). In other words, English modal verb pragmatic knowledge is more strongly predicted by specific grammatical knowledge than that of general grammatical knowledge. Neither of the two indicators (general grammatical knowledge and specific grammatical knowledge) has a much higher predictive capacity than practical knowledge. So, we can make a conclusion that the hypothesis one is right.

The study results suggest that grammatical knowledge is better taken as a multi componential construct, since the Larson-freeman model and the Purpura model (which are multi-componential) fit the data better than the Canale and Swain model and the Bachman and Palmer model (which are uni-componential and do not make a distinction between form and meaning). The results also suggest that grammatical knowledge consists at least of knowledge of grammatical form and grammatical meaning. Our hypothesis two is generally correct. The result of hypothesis

two shows although grammatical meaning and form may be closely related, this does not necessarily imply that they are the same. In other words, to a more or less degree the two constructs appear to be empirically distinguishable. From this sense, based on our empirical study, we hold hypothesis three is also holds water.

As indicated by the correlational statistics, all the L2 knowledge that grammatical knowledge and pragmatic knowledge may be reciprocal and non- reciprocally related (0.72, 0.73, and 0.72 respectively). We also find from the correlational results that knowledge of grammatical form and meaning are more strongly related to each other than to knowledge of pragmatic use (0.92, 0. 65, and 0. 70 respectively), that the relationship between knowledge of grammatical form and meaning and that of pragmatic use appears to be non-hierarchical and non-directional (i.e., reciprocal), and that grammatical knowledge and grammatical form and meaning might be hierarchically related (0. 92 and 0. 95 respectively). In other word, our hypothesis four is reasonable.

As pointed out previously, any single factor of the three (politeness, certainty, and naturalness) for pragmatic knowledge can only account for a small number of the total variance (21.4%, 31.5%，and 30.5% respectively), which means that a three-factor solution produces the most meaningful patterns (accounting for 83.33% of the total variance). But their low correlation coefficients show the three factors are rather poorly inter-related, which also suggests that it is practical to treat the three factors as independent indicators of pragmatic use. Thus, our hypothesis five also holds water. The examination of a single factor model suggests that a model with L2 knowledge as a single factor may be a poor representation of the data, as far as English modal verbs are concerned. As a result, our hypothesis six is falsified.

The learners' test performance in the study shows, however, that it is the other way around for Chinese English learners, who perform better on epistemic meanings than on root meanings. This result suggests that adult non-native learners have different difficulty points as compared with non-adult native learners and that the results from the studies of native non-adult learners should not be blindly applied to adult L2 learners. As to the form and use dimensions, we find no significant difference in the difficulty order of the acquisition of root and epistemic English modals by Chinese learners. So, we see the hypothesis seven is accurate.

Knowledge from Research

Together with the above findings, our new knowledge can be summarized as flows: (1) grammatical knowledge is related but distinct from the sociolinguistic dimension of pragmatic knowledge; (2) grammatical knowledge includes both grammatical form and grammatical meaning. Though may be highly related, grammatical form and grammatical meaning are not necessarily identical (i.e., they are distinct components). And we find that it is possible to further par-simonize the L2 knowledge models. Thus, we put forward a hypothesized model of L2 knowledge as it relates to English modal verbs. This model is an integrated Model of L2 Knowledge, i.e., the Trait-only Model.

Conclusion

The major findings will be organized around the three research questions. Based on the validity examination of the models, we find that all the four models of L2 knowledge examined with respect to English modal verbs are generally adequate in explaining the relationships among the constructs of the L2 knowledge, though some of them are more plausible than others. Based on the examination of these models, we have devised a more parsimonious and more explanatory model of L2 knowledge and further examined its validity. This improved model is capable of a better explanation of the relationship among the theoretical constructs of L2 knowledge models and more applicative in our L2 teaching management system for applied colleges.

Suggestions

Although we have done some work towards the validation of L2 knowledge modeling, our work is still far from complete. More efforts are called for some issues which were still left to be resolved, so that we will be able to acquire a better understanding of the nature of L2 knowledge and to construct more adequate L2 knowledge models for our practical teaching management system for our applied talents training. One of the issues is whether the theoretical ideas behind the L2 knowledge models examined can be generalized to linguistic structures other than English modal verbs. Another question needs to be answered is whether students of different proficiency levels will generate different results. Besides, the link between pragmatic knowledge and grammatical knowledge is still very much under investigation. More efforts should be made so as to find the more specific factors which may be responsible for the decision of grammatical

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knowledge and pragmatic knowledge. However, the present environment in applied colleges is various greatly because they adopt different model in their teaching management respectively. And applied talents training are an urgent tendency and we need urgently an innovation in our practical teaching management especially the L2 teaching management (Su & Lin, 2016). So, a really valid and effective L2 knowledge model for our practical teaching management will be long-time researches. For that, we are still on the way to more studies on our teaching management. And we believe we will have more and more valuable models for our L2 teaching management.

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