



Relationship between Skills and Efficiency of Learning Vietnamese by Cognitive Technology: A Case Study of Foreigners Student in Vietnam Universities

Nguyen Thi Bich Hang

Hanoi University

ABSTRACT

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Since Vietnam is integrating internationally in all aspects of social life, more and more foreigners are learning Vietnamese. However, there are still very few quantitative studies on the effective teaching and learning of Vietnamese idioms. This study aims to fill the theoretical gap and provide more evidence on the relationship between skills and effectiveness in learning Vietnamese phrases. This study was conducted through a cross-sectional survey using purposeful sampling (n=100). The multivariate linear regression analysis technique is applied to prove the hypotheses. The R language is used to analyze research data. Research results show that problem-solving, general, and synthetic thinking skills have a positive and meaningful impact on the effectiveness of learning Vietnamese idioms. The results of this study continue to confirm the role of cognitive techniques in learning idioms as the results of previous studies.

Keywords:

Idioms, Vietnamese, cognition, learning, teaching, problem, general, synthetic, solving, thinking.

INTRODUCTION

Along with Vietnam's trend of integration into the world economy, more and more people wish to learn Vietnamese as a second language (Luu Khuong, 2017). Vietnamese is always considered a difficult language because of its diverse grammar system and complex tonal system (Park Ji Hoon, Chu Thi Phuong Lan, & Tran Thi Huong, 2020). Many studies have implied that the teaching method of Vietnamese language teaching for second language learners should be renewed to help them become interested in learning Vietnamese (Nguyen Van Hue, 2016). Studies also show that for those who have had experience in learning a foreign language, learning more Vietnamese will be more convenient. People who have traveled or worked in Vietnam for a while, as well as those who have close relationships with Vietnamese, often have many advantages and learn faster than those with no experience in Vietnamese (Dinh Thi Thuy Trang, 2009).

Corresponding Author: Nguyen Thi Bich Hang

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Many studies have also analyzed the necessary factors to help foreigners quickly grasp the basic knowledge of Vietnamese in terms of phonetics, grammar, and semantics, such as applying a learner-centered teaching model (Vu Duc Nghieu, 2005; Vu Thi Hoa, 2005; Le Thi Hiep, 2017; Park Ji Hoon, Chu Thi Phuong Lan, & Tran Thi Huong, 2020; Nguyen, 2012).

Contemporary theoretical and experimental studies have found that second language learning is a way to understand cognitive processes in language acquisition. Language is a complex cognitive activity. Therefore, pre-linguistic conditions contribute to its acquisition (Chomsky, 1957; Ivanov, 2005). Idioms are fixed expressions belonging to the usual usage of native speakers of a language. Both the meaning and form of idioms are standardized (Sprenger et al., 2006). Idioms are used in all forms of discourse: in conversations, lectures, movies, radio shows, TV shows, etc., learners function effectively in the context of second-language communication without the need for knowledge of idioms. So learning idioms is essential for second language learners, and every second language learner must be mentally prepared to face these challenges. Second language learners should learn not only the grammatical and lexical structures of the target language but also idioms in order to assimilate

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into the culture of the second language (Seccord & Wiig, 1993).

According to the traditional view, learning the meaning of idioms requires speakers to form arbitrary associations between idioms and their nonverbal meanings in order to realize it (Ackerman, 1982; Prinz, 1983). Idiomatic expressions exhibit a high degree of semantic structure. Idiomatic meanings are constructed simultaneously from word meanings and specific interpretations of these word meanings in a particular context (Titone, 1999). The analytic power of idioms does not depend on the literal formation of the word sequence (Gibbs & Nayak, 1989). All that matters for an idiom to be parsable is that its parts must have a meaning, literally or figuratively, independently contributing to the overall figurative interpretation of the phrase (Gibbs, 1994).

Teaching and learning idioms are one of the most challenging areas in which teachers and second language learners are involved. Therefore, second language teachers have always sought practical and effective teaching methods to teach idioms. In addition, idioms make up a large proportion of any argumentative essay, and their understanding and production are significant parts of the study of idioms in both first and second-language literature (Botelho da Silva & Cutler, 1993; Colombo, 1993; Cronk & Schweigert, 1992; McGlone et al., 1994). Cognitive apps for teaching and learning bring new contributions to second language learning. Technically, cognition is not a single framework nor a uniform approach. Instead, it consists of several theoretical models that share two main basic principles, namely (i) that language is considered an integral part of cognition, not separate, but related to abilities. Other cognitive functions include memory, attention, and classification; and (ii) interpreting a language from a semantic-pragmatic perspective because it is considered usage-based rather than independent human ability (Talmy, 1985; Langacker, 1987; Fauconnier & Turner, 1996). This study aims to fill the theoretical gap and provide more evidence on the relationship between skills and effectiveness in learning Vietnamese phrases.

LITERATURE REVIEW

The essence of teaching and learning idioms

It is difficult for native speakers to master idioms, let alone second language learners because the figurative meanings of idioms cannot be predicted by analyzing individual word meanings (Buchwald, 2000). However, idioms are widespread in everyday life and provide a rich cultural source (Cooper, 1999). Failure to understand the meanings of idioms can affect an individual's understanding of language in social, academic, and professional settings (Nippold & Martin, 1989). A variety of practical activities can teach idioms to second-language students to learn them

effectively and apply them in practice (Strassman & O'Conn, 2007).

Idiom familiarity, transparency, and idiom performance gradually improved as participants' age increased (Arnold & Hornett, 1990; Levorato & Cacciari, 1992, 1995; Nippold & Rudzinski, 1993; Titone, 1994). Familiarity, texture, predictability, and literalism are essential aspects of idioms processing (Titone, 1994). Idioms in the mother tongue and a second language are shown to learners with slightly more difficulty. Completely different idioms in the mother tongue and second language, proving the most difficult for learners to understand and understand, with almost no positive or negative transfer between the two languages (Titone, 1994). To gather information about how second language learners process, understand, and interpret idiomatic expressions in and out of context. Vocabulary knowledge and understanding are directly related to idiom performance regardless of whether contextual support is provided to second language learners (Liontas, 2001).

Some researchers have suggested that second language learners, unlike native language learners, struggle to understand idioms correctly (Cooper, 1998; Irujo, 1986, 1993). Teachers must effectively illustrate critical words by displaying pictures and diagrams to improve reading comprehension for second language learners (Scarca & Oxford, 1992). Words and pictures presented together help second language learners recall better than alone. Providing exciting pictures to foster and reinforce vocabulary development is very effective. Therefore, visuals must be attractive, engaging, and motivating for second-language learners to understand and retain the text (Mayer, 1999).

Group discussions can provide learners rich opportunities to acquire the social and linguistic knowledge necessary to understand new texts they encounter (Freeman & Freeman, 1994). Second language learners engage in collaborative discussion during content reading, supporting each other in understanding the meaning of difficult words, grasping main ideas, and answering questions about what they read. As a result, group discussion appears to be an effective technique for improving the reading comprehension of second language learners (Klingner & Vaughn, 2000).

The researchers claim that dialogue provides a way to improve fluency, enhance comprehension, and create excitement and enthusiasm for learning (Bafile, 2003; Rudd, 1999). Older second language learners can benefit from retelling stories as it allows second language learners to learn how to organize and describe events, which improves reading comprehension (Brandi-Muller, 2005). Learners not only become more enthusiastic and willing to take the opportunity to read aloud but also remember vocabulary better with this method. In addition, retelling activities can reinforce the integration of recently learned readings (Brandi-Muller, 2005). Conversations written by second language learners function as essential communication at all levels (Scott &

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Ytreberg, 2000). Play as a character are also great activities for learners to speak in a relatively safe classroom environment before they have to do so in the real world (Nunan, 2003).

In second language learning, the focus should not be on language in isolation from memory, attention, human social contacts, or any other experience. The nature of language is consistent with extroverted reality - mentally and socially (Langacker, 1987, 1991; Lacroff, 1987). Guide learners to use knowledge about the structure of grammar, how to use words in the language (Tomasello, 2003; Pinker, 1989; Tomasello, 2003; Valian, 1991; Wexler, 1994; Rice et al., 1998). For adults, second language learning stores individual utterances, concrete lexical structures, and abstract schemas. Adult linguistic knowledge consists of a network of hierarchical structures representing cognitive abstractions. However, the syntactic and semantic connections between constructs manifest differently in different linguistic and syntactic frameworks (Croft, 2001). Learning a second language is based on a synthetic theoretical model and a functional-cognitive approach (Tomasello, 2003; Croft, 2001; Goldberg, 1995; Langacker, 1987, 1991).

Learning a second language with a cognitive approach

Second language teaching and learning is effective in linking language to cultural context. Cognition is a way of teaching and learning a language in a cultural context. Cognition is one of the techniques for connecting language and culture. Learning a language is like connecting with culture because cultural values and ways of life are expressed within the language. Cognition makes learning a second language like marzipan because it makes you feel like you are learning a romantic language and intelligent and cultured (Tabata-Sandom et al., 2020; Fang, 2015; Faijami, 2012). Cognitive considers language learning as a kind of cognitive act (Ungerer & Schmid, 2001; Geeraerts, 1997). Cognitive teaching and learning are important ways to change and develop language. In life, perception takes place everywhere, at any time, because it is a way of thinking. So it would be good to teach the language using cognition. They are powerful cognitive tools for us to form concepts of abstract vocabulary types. The most important feature of the cognitive method is its relation between things and categories. (Johnson & Lakoff, 1980).

Without grammar, very little can be conveyed; without symbols, it is impossible to communicate (Wilkins, 1974; Richards, 1986). Language context information enhances idiom interpretation (Nippold & Martin, 1989). The contextual cues surrounding a particular word can help the reader make sense of it. On the contrary, a language that minimizes context will be challenging for readers to accept (Brown, 2001). Therefore, second-language second-language learners learn languages in meaningful contexts rather than learning separate words through memorization and reading

comprehension. Teaching a second language by the cognitive method is very effective because it reflects people's ability to generalize and synthesize, connecting language and culture through context (Putz et al., 2001; Rudzka-Ostyn, 2003; Lazar, 2003; Achard & Niemeier, 2004; Lindstromberg & Boers, 2008; Holme, 2009; Littlemore, 2009; de Knop et al., 2010; Tyler, 2012; Llopis -Garaa et al., 2012; Castaneda Castro, 2014; Masuda et al., 2015; Ibarretxe-Antunano et al., 2019; Lam, 2009; Boers, 2011).

The benefits of cognitive language teaching develop through communication and learning strategies (Hijazo-Gascon, 2011). Applying this approach can significantly benefit second language acquisition, especially in vocabulary (Perez-Serrano, 2015; Boers & Lindstromberg, 2006, 2008). Cognitive skills learning helps learners practice language skills (Tabata-Sandom et al., 2020). Language learning by perception is like: "a sport, better with practice." Language learning is difficult and frustrating, certainly a struggle, and sometimes fruitless. Learning a second language is like rolling a stone up a hill, where language learning has become an endless, fruitless quest. Thus, cognition gives learners new skills to overcome (Tabata-Sandom et al., 2020).

Cognition helps second language learners find it engaging and fun because it makes learners feel that learning a second language is a source of entertainment. Cognition can make second language learners addicted, like a good TV series. Once a learner starts, it is nearly impossible to stop. Learners feel more and more and become more and more curious. Perseverance makes second language learners feel like dancing because cognition makes them fluent and understanding; it is like construction and problem-solving. Other cognition focuses on helping second language learners deal with the complex and frustrating aspects of language learning (Fang, 2015; Faijami, 2012).

The essential skills of learning idioms effectively

Problem-solving skills. Language learning is a problem that needs to be solved because it is a puzzle that is considered impossible without outside help. Hence, learners must apply a cognitive approach to teaching a second language. Solving the language problem is like seeing the world with clean glasses after having poor eyesight. Perception helps learners better see and understand the world in a second language (Tabata-Sandom et al., 2020). Learning a second language as a journey or discovery (Fang, 2015; Faijami, 2012). Learning a second language is like a never-ending road because there is always something new to learn or adapt. Cognitive skills helps learners solve language problems (Fang, 2015; Faijami, 2012).

General thinking skills. Learning a second language is like building a content system out of components and their uses and putting them together to form a complete idea. To do this, learners require hard work, perseverance, and a firm

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grasp of the cognitive approach to teaching a second language (Tabata-Sandom et al., 2020; Fang, 2015; Faijami, 2012).

Synthetic thinking skills. Learning a second language slowly forces learners to grips with grammatical structures. Learners will feel that there are a lot of separate and messy small parts if they lack logical thinking and

flexibility to arrange them in the structure system. Learners need cognitive knowledge to solve this problem. Cognition skills helps learners locate words and recognize complex structures of a second language (Tabata-Sandom et al., 2020; Fang, 2015; Faijami, 2012).

Table 1. Language skills and effective second language learning

<p>PROBLEM-SOLVING SKILLS</p>	<p>Language learning is about solving language and thinking problems; Cognitive approaches to help solve their language problems; Cognitive helps learners to see and understand the second language world better; Cognitive helps learners see second language learning as a journey or discovery; Cognitive helps second language learners feel like a never-ending road because there is always something new to learn or adapt; Cognition helps learners to solve language problems and think well; Cognition makes second language learners feel like dancing because it is a perception that makes second language learners fluent and understanding; it is like construction and problem-solving; Cognitive focuses on helping second language learners deal with the complex and frustrating aspects of language learning.</p>	<p>Tabata-Sandom et al., 2020; Fang, 2015 ; Faijami, 2012 .</p>
<p>GENERAL THINKING SKILLS</p>	<p>Learning a second language is like building a content system out of components and their uses and putting them together to form a complete idea; Learners require discipline and perseverance, and a firm grasp of the cognitive approach to teaching a second language; Cognition helps second language learners find it engaging and enjoyable because it makes learners feel that learning a second language is a source of entertainment; Cognition can make second language learners addicted, and an excellent TV series needs to be synthesized and explored.</p>	<p>Tabata-Sandom et al., 2020 ; Fang, 2015 ; Faijami, 2012</p>

SYNTHETIC THINKING SKILLS	<p>Learning a second language forces learners to come to grips with grammatical structures slowly;</p> <p>Learners will feel that there are a lot of separate and messy parts if they lack logical thinking and flexibility to arrange them in the structural system;</p> <p>Learners need to have cognitive knowledge to solve this problem;</p> <p>Cognition helps learners locate words and recognize complex structures of a second language.</p>	Tabata-Sandom et al., 2020 ; Fang, 2015 ; Faijami, 2012.
EFFECTIVE LEARNING	<p>Revival of grammar in the classroom;</p> <p>Help to learn the guided discovery of the rules of language;</p> <p>Eliminate the formation of language habits through behavior;</p> <p>Mental effort because learners are thinking creatures;</p> <p>Develop fault analysis skills;</p> <p>Apply contextual grammar;</p> <p>Understand a grammar rule well before practicing it in meaningful contexts.</p>	Rubin, 1975

Source: Compiled by the researcher

Hypotheses

Based on the research model, the following hypotheses were formed:

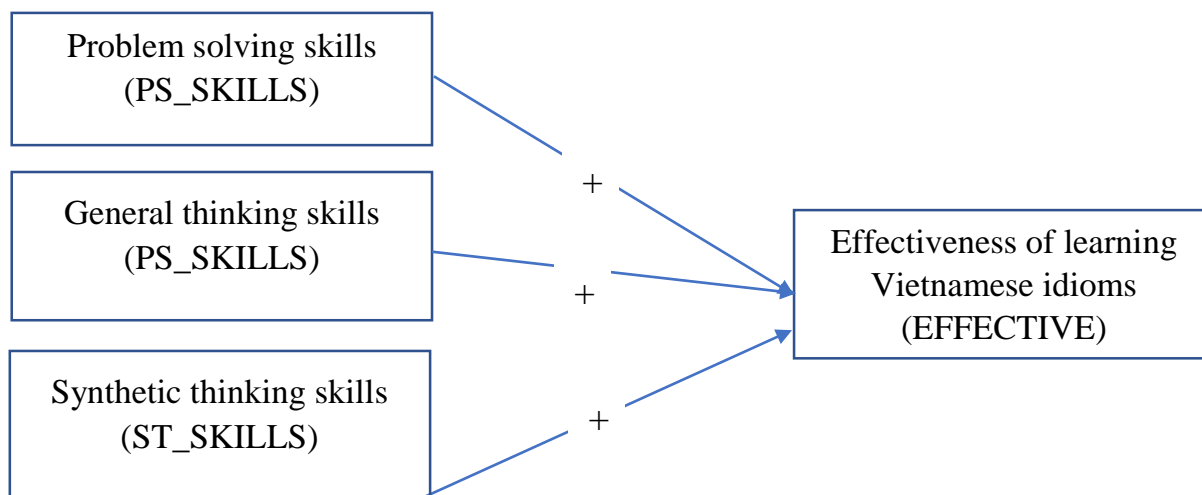
H1. Problem solving skills have a positive and meaningful impact on the effectiveness of learning Vietnamese idioms

H2. General thinking skills have a positive and meaningful impact on the effectiveness of learning Vietnamese idioms

H3. Synthetic thinking skills have a positive and meaningful impact on the effectiveness of learning Vietnamese idioms

From these research hypotheses, the following research model is built (Figure 1).

Figure 1: The Research Model



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RESEARCH METHOD

The study was conducted at universities in Hanoi in April 2022. This city has 100 universities, the most in Vietnam. Universities that offer high-quality Vietnamese language courses for non-Vietnamese speakers, such as Hanoi University, Hanoi National University of Education, and University of Foreign Languages - Hanoi National University Interior. In addition to Vietnamese language courses at the university, many centers offer Vietnamese courses that teach the Vietnamese language and culture to foreigners in Hanoi. To carry out this study, the research team used a qualitative method by in-depth interviews with educational researchers and linguistics to build a research scale as well as improve the questionnaire accordingly. The questionnaire was built based on the results of the research overview and the opinions of experts, including two parts. Part 1 is used to collect demographic information of study participants, such as age, gender, and country. Part 2 collects information about research participants, including functional language problem-solving, general thinking, and synthetic thinking skills (Table 1). These contents are based on the research results of Tabata-Sandom et al.(2020), Fang (2015), Fajjami (2012 and Rubin (1975).

The English questionnaire was translated into Vietnamese by two professional interpreters. The translation process is carried out according to the rules to adapt between Vietnamese cultures. After the translators' and principal investigator's discussion and consensus, a single Vietnamese version was created. A professional bilingual expert in education contributed to this version to create a final version. This final version was pre-tested on 10 participants selected to be demographically representative of age, sex, and country. These people have lived in Vietnam for at least two years and have completed a basic Vietnamese program. Their teachers taught them cognitive techniques. During the assessment, participants were asked to complete this final version. Minor corrections followed this to improve the question structure for better understanding, and the final Vietnamese version was completed using the official survey. The questionnaire was sent directly to the respondents by the purposeful sampling method. Respondents have lived in Vietnam for at least one year and have completed a basic Vietnamese language program. As a result, achieving a response rate of 100%. Demographic information of study participants (Table 2).

Table 2. Demographic characteristics of survey participants

		duration							
		1 to 2 years		2 to 3 years		Less than 1 year		more than 3 years	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
gender	female	8	11.4%	33	47.1%	9	12.9%	20	28.6%
	male	7	23.3%	14	46.7%	7	23.3%	2	6.7%
age	20 years old	5	22.7%	13	59.1%	2	9.1%	2	9.1%
	21 years old	2	11.1%	6	33.3%	1	5.6%	9	50.0%
	22 years old	6	13.6%	25	56.8%	6	13.6%	7	15.9%
	over 22 years old	2	12.5%	3	18.8%	7	43.8%	4	25.0%
country	Australia	0	0.0%	9	56.2%	2	12.5%	5	31.2%
	Cambodia	2	12.5%	8	50.0%	4	25.0%	2	12.5%
	China	5	20.8%	6	25.0%	5	20.8%	8	33.3%
	Laos	3	21.4%	8	57.1%	1	7.1%	2	14.3%
	Russia	2	15.4%	7	53.8%	2	15.4%	2	15.4%
	South Korea	3	17.6%	9	52.9%	2	11.8%	3	17.6%

RESEARCH RESULTS

R Programming language is used to analyze the scale's reliability, exploratory factor analysis, correlation analysis, and regression analysis.

Analyzing the Reliability of the Scales:

The purpose of testing the scales through Cronbach's Alpha reliability coefficient is to identify and eliminate junk variables to avoid creating misleading factors when analyzing

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exploratory factor analysis. Cronbach's Alpha coefficient has a variable value in the interval [0,1]. If a measurement variable has a total correlation coefficient of Corrected Item - Total Correlation ≥ 0.3 , then that variable meets the requirements (Cronbach, 1951; Taber, 2018). The verification criterion is that Cronbach's Alpha coefficient

Table 3. Summary of Reliability and Relative Minimum Variables of Scales

Scales	Number of variables observed	Reliability coefficients (Cronbach Alpha)	The correlation coefficient of the smallest total variable
effective	7	0.870	0.575
ps_skills	8	0.886	0.587
gt_skills	4	0.798	0.561
st_skills	4	0.821	0.487

After testing Cronbach's Alpha, the author uses the Exploratory factor analysis (EFA) method to preliminary evaluate the scales' unidirectional, convergent and discriminant values. EFA was used by extracting the Principal Components Analysis Factor and Varimax rotation to group the factors. With a sample size of 100, the factor loading of the observed variables must be greater than 0.5; variables converge on the same factor and are distinguished from other factors. In addition, the Kaiser-Meyer-Olkin (KMO) coefficient, which is used to consider the adequacy of factor analysis, must be in the range of $0.5 \leq KMO \leq 1$ (Cerny

must be greater than 0.6, and the correlation coefficient of the sum variable in each scale must be greater than 0.3 (Hair, Black, Babin, & Anderson, 2010). Table 3 shows that the scales of the factors are all valid. Therefore, all the scales of the factors are reliable and used for subsequent factor analysis.

& Kaiser, 1977; Kaiser, 1974; Snedecor, George, Cochran & William, 1989).

The analysis results in Table 4 show that all factor loading coefficients of the observed variables are greater than 0.5; Bartlett test with Sig meaning. = 0.000 with KMO coefficient = 0.902. There was 1 item eliminated due to factor loading < 0.50 . All 22 items using EFA are extracted into 4 factors with Eigenvalues greater than 1 and Cumulative variance percent = 61 %. Thus, the research model consisting of 3 independent variables and 1 dependent variable is used for linear regression analysis and subsequent hypothesis testing.

Table 4. Exploratory factor analysis

Rotated Component Matrix ^a				
	Component			
	1	2	3	4
ps_skills8	.806			
ps_skills4	.745			
ps_skills3	.689			
ps_skills1	.658			
ps_skills2	.653			
ps_skills5	.583			
ps_skills6	.561			
ps_skills7	.519			
effective1		.774		
effective3		.717		
effective5		.673		
effective2		.639		
effective4		.524		
effective6		.509		
gt_skills1			.749	
gt_skills4			.735	

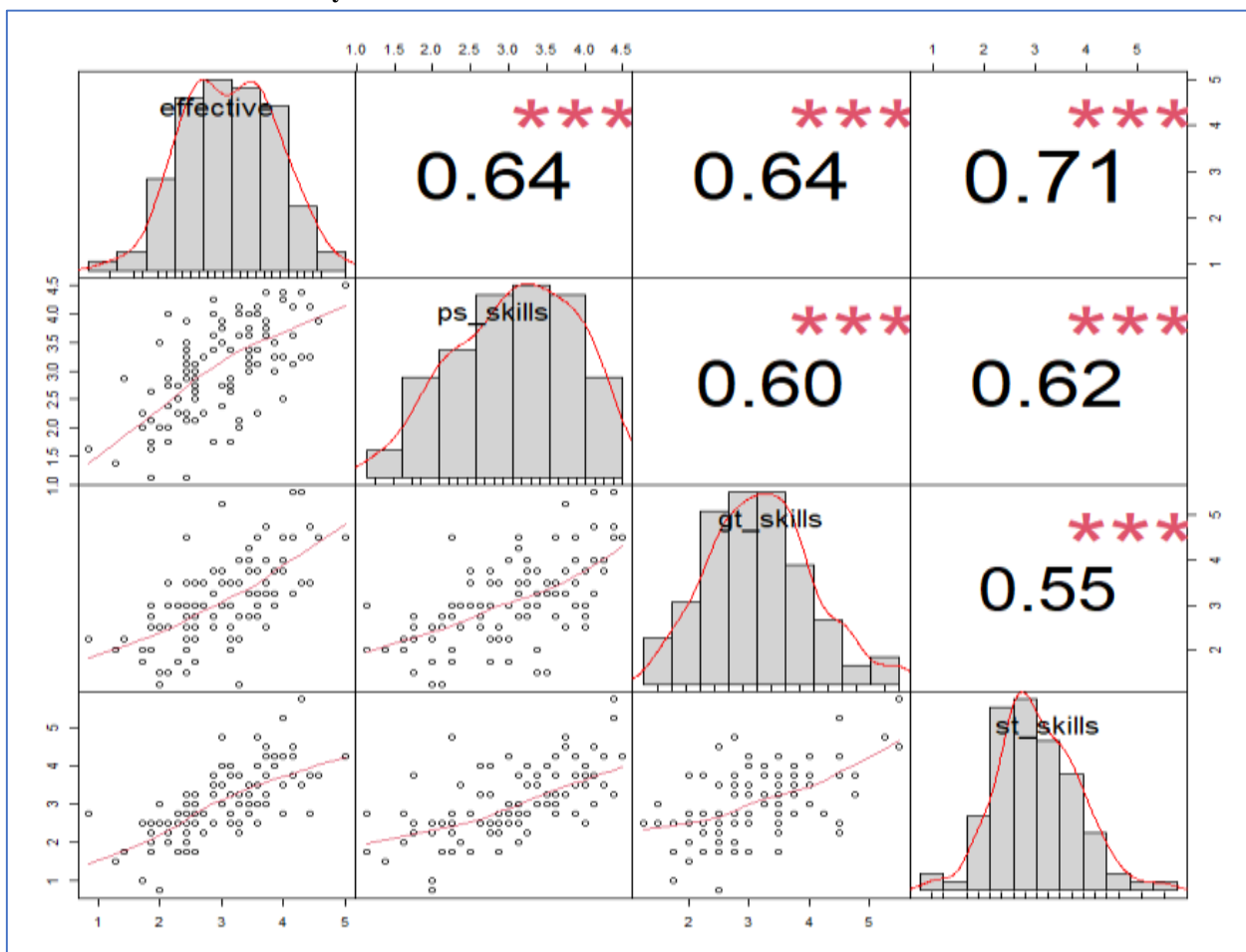
gt_skills2			.676	
gt_skills3			.585	
st_skills1				.793
st_skills3				.666
st_skills4				.639
effective7				.533
Extraction Method: Principal Component Analysis.				
Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 7 iterations.				

Pearson correlation analysis

The author uses Pearson correlation analysis to analyze the correlation between quantitative variables. Figure 2 shows that, at the 95% significance level, the correlation coefficient indicates that the relationship between the dependent and independent variables is statistically

significant (Sig. < 0.05). The magnitude of the correlation coefficients between the independent and dependent variables ensures that multicollinearity does not occur. Therefore, the next step, the multivariate linear regression analysis procedure, is valid.

Figure 2. Pearson correlation analysis results



Linear regression analysis

A multivariable linear regression analysis model is applied to analyze the impact of 3 dependent variables: ps_skills, gt_skills, and st_skills, on one dependent variable: effective. Table 4 shows that $R^2 = 0.615$ mean that the built

linear regression model fits the data = 0.615%. This result shows that all the proposed hypotheses are accepted. Problem-solving skills (ps_skills) have a positive and significant impact on the effectiveness of Vietnamese idioms learning with the regression coefficient ($\beta = 0.195$) and 95%

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significance level (p.value = 0.001). General thinking skills (gt_skills) have a positive and significant effect on the effectiveness with a regression coefficient ($\beta=0.256$) and a significance level of 95% (p.value = 0.000). Synthetic thinking skills (st_skills) have a positive and significant

impact on the effectiveness of learning Vietnamese idioms with a regression coefficient ($\beta = 0.394$) and a significance level of 95% (p.value = 0.000). Thus, at the 95% significance level, the hypotheses proposed by the research team are accepted..

Table 4. The results of multiple linear regression analysis

Dependent variable:	
effective	
ps_skills	0.195** (0.087)
gt_skills	0.256*** (0.072)
st_skills	0.394*** (0.077)
Constant	0.389* (0.218)
Observations	100
R2	0.615
Adjusted R2	0.603
Residual Std. Error	0.508 (df = 96)
F Statistic	51.203*** (df = 3; 96)

Note: *p<0.1; **p<0.05; ***p<0.0

DISCUSSION AND CONCLUSIONS

The first. Research results (Table 4) show that there is a close relationship between the problem-solving skills factor (ps_skills) and the effectiveness of learning Vietnamese idioms (effective). This is shown in the correlation coefficient (Figure 2) between the variable ps_skills and the effective variable (r = 0.64) and the 95% significance level (p.value = 0.000); regression coefficient ($\beta = 0.195$) and significance level of 95% (p.value = 0.001). The results of this study prove that learning a second language is about solving language and thinking problems. The cognitive approach helps solve language problems; learners can see and understand the second language world better, view second language learning as a journey, or discover and solve problems. The problem-solving skills in language and thinking well, addressing the difficult and frustrating aspects of language learning. This result is similar to previous findings in other countries (Tabata-Sandom et al., 2020; Fang, 2015; Faijami, 2012)..

Secondly, research results (Table 4) show a close relationship between the factor of general thinking skills

(gt_skills) and the effectiveness of learning Vietnamese idioms. This is shown in the correlation coefficient (Figure 2) between the variable gt_skills and the effective variable (r = 0.64) and the 95% significance level (p.value = 0.000); regression coefficient ($\beta = 0.256$) and significance level of 95% (p.value = 0.000). The results of this study show that learning a second language requires general thinking skills, building a content system from components and how to use them, and putting them together to form a whole idea. This result is similar to previous findings in other countries (Tabata-Sandom et al., 2020; Fang, 2015; Faijami, 2012).

Thirdly. Research results (Table 4) show a close relationship between the factor of synthetic thinking skills (st_skills) and the effectiveness of learning Vietnamese idioms. This is reflected in the correlation coefficient (Figure 2) between the variable st_skills and the effective variable (r = 0.71) and the 95% significance level (p.value = 0.000); regression coefficient ($\beta = 0.394$) and significance level of 95% (p.value = 0.000). The results of this study show that learning a second language forces learners to slowly and steadily come to the grammatical structure. Learners see

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many small separate parts, easy to mess up if they lack logical thinking and flexibility to arrange them in the structural system. Cognition helps learners locate words and recognize complex structures of a second language. This result is similar to previous findings in other countries (Tabata-Sandom et al., 2020; Fang, 2015; Fajjami, 2012).

Fourthly. The results of this study continue to confirm the reasonableness of the factors affecting the effectiveness of second language learning, as previously discovered by Rubin (1975). The effectiveness of second language learning is reflected in learners revitalizing grammar, the guided discovery of language rules, eliminating language habit formation through behavior, and developing language skills. Analyze errors, apply contextual grammar, and understand a grammar rule well before practicing it in meaningful contexts.

Finally. The results of this study imply that applying cognitive techniques in teaching Vietnamese idioms is necessary. Teachers who teach Vietnamese idioms to people who do not use Vietnamese as their mother tongue need to focus on learners' skills, such as problem-solving skills, general thinking skills, and synthetic thinking skills. In particular, it is necessary to focus on synthetic thinking skills because it significantly impacts the effectiveness of learning Vietnamese idioms through cognitive techniques. In addition, teachers need to guide learners to be ready and correctly guess language situations using cognitive techniques in the Vietnamese cultural context, thereby helping learners hone their language skills.

Limitations

As with other empirical studies, there are limitations to this study that should be considered when discussing the results. First, our survey method reflects the subjective perception of the respondents toward the questions being investigated. Subjective data has some inherent disadvantages that are hard to avoid in surveys (Thanh, Thuy, Hoa & Thien, 2022). Our data is collected over the same period. Cross-sectional data do not allow for a dynamic assessment of students' changes in intentions and related behaviors regarding their foreign language learning intentions, which may affect their applicability (Tung, Thanh, Thao, Thu, Nguyet, & Tu, 2021). Future research should combine cross-sectional and longitudinal studies. The purposeful sampling method has limitations and does not fully reflect population characteristics (Lin et al., 2016; Strong et al., 2018). Our survey was conducted in Hanoi. Therefore more general statements are needed that could be made by applying the research development model and research conclusions to other areas in the region. Vietnam and other cultures (Sun et al., 2012).

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Conflict of interest

The author declares that there is no conflict of interest.

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