

Teaching Language in Cross-Disciplinary Contexts

DOI: <https://doi.org/10.47175/rielsj.v1i1.27>

| Phuong Nguyen Hoang |

University of Social Sciences
and Humanities, VNU –
HCMC, Vietnam
Chungwoon University, South
Korea

ling.dr.phuong@gmail.com

ABSTRACT

Cross-disciplinarity is more and more important because of the wide specialization demanded by job markets. Separate disciplines are demanded with increasing urgency to integrate their concepts and methods in teaching and research. Only through the intersection of different disciplines can progress and innovation be achieved in specific knowledge areas. It is said that much leading science nowadays progresses not by placing one brick upon the other within a single discipline, but by solving complex problems that cut across many disciplines. Language teaching has to conform to what today's society demands from professional occupations: a cross-disciplinary role with a result-oriented focus. Cognitive science can provide an adequate model for cross-disciplinary investigation because it integrates linguistic, psychological, philosophical, neurological, computer science, anthropological and historical contributions. Within the cognitive paradigm, a linguistic term does not exclusively exist because of its relations with others but also of culture-based and conventionalized background knowledge. We will use and rely on principles and models of cognitive linguistics to apply and handle language teaching in cross-disciplinary contexts.

KEYWORDS

Cross-disciplinarity; cognitive; integrate; context; language teaching

INTRODUCTION

Cross-disciplinarity should be viewed as an interactive and practical task, an activity to apply to everyday professional practice. There can be many different ways to develop its practice creatively and initiatively. Experiences from practical implementation of cross-disciplinary action in language teaching have been proposed (Rigol Verdejo & Roldán Riejos, 1992, p. 58-70). The importance of cross-disciplinarity is also growing because of the wide specialization demanded by job markets and partly assumed by universities. Dogan and Pahre (1990) argue that only through the intersection of different disciplines can progress and innovation be achieved in specific knowledge areas. Leading science nowadays proceeds not by placing one brick upon the other within a single discipline, but by solving complex problems that cut across many disciplines. Unless the universities adapt to this change, they will be pushed back to the margin of science.

METHOD

Language, as a mean of communication between members of the society, reflects many aspects of a given culture. The structure of language is made up of two important factors: the internal factor, that is, the intellect of the individual speaker and the external factor, that is, a culture common to many people speaking the same language. Therefore, language

teaching is also inseparable, regardless of the other countless factors that have a great impact on acquiring languages such as society, culture, intelligence, thinking, etc.

Language in use reflects what humans mean and think (Johnson, 2017). Image schema theory has its root in embodied or grounded cognition. Accordingly, human bodily experiences are the source for cognitive capacities. This viewpoint has become increasingly supported by findings from both psychology and neuroscience (Gallese & Lakoff, 2005; Feldman & Narayanan, 2004; Wilson & Gibbs, 2007). Based on embodiment theory, image schemas are considered mental representations that are extracted from our experience with the external world. An image schema is a cognitive structure which is used to interpret humans' physical experiences and connections of concepts in the human mind (Clausner & Croft, 1999). In terms of human sense of the directions and locations of things in the physical world, they make sense of the surrounding, such as LEFT, RIGHT, UP and DOWN. Hampe (2005, p. 18) describes the image schema as "sensory-motor nature of various structures of our conceptualization and reasoning".

Language teaching has to conform to what today's society demands from professional occupations: a cross-disciplinary role and with a result-oriented focus. General language teaching requires a thorough analysis of various aspects concerning the student's profile. The following factors must be taken into account: social, economic, psychological and occupational ones. Resorting to the university libraries, consulting specific journals or looking at newspaper classified ads can be other strategies that the teacher can follow. Students can also provide information by answering questionnaires, in personal interviews, etc. (Edwards, 1996). The concept of cross-disciplinarity must be considered right at the first stages of language teaching, such as, course design when targets are established and needs are analyzed. And the cognitive theoretical model should be used to study when considerations on cross-disciplinary research are made. Below are some specific applications of teaching language in cross-disciplinary contexts.

RESULTS AND DISCUSSION

Principles for language teaching

Firstly, language is not an autonomous ability in the view of Cognitive linguistics. This principle contrasts with the famous hypothesis of generative grammar that language is an autonomous cognitive ability or a separate module with nonverbal cognitive abilities. It acknowledges that the expression of linguistic knowledge is essentially the same as the expression of other conceptual structures, that the processes in which knowledge is used are not fundamentally different from the cognitive abilities that people use outside of language. In other words, language should not be considered an innate part completely independent of cognitive ability, the linguistic mechanism is only part of the universal cognitive mechanism.

We, when applying this principle to language teaching, must consider language as a mass of knowledge that learners must acquire in a given time process just as acquiring any other type of their knowledge. As a result, it is impossible to teach and to acquire the language immediately, but it requires a certain time period. To shorten this process, we must take advantage of their existing knowledge, guide them to use the knowledge they already have to manipulate language learning faster. This means that for each type of learners we have to assess the level of basic knowledge in and out of their language to have an appropriate teaching strategy. Each different group of learners will have different intellectual capital, thinking methods, and levels of language responses. For example, housewives will not be able to have quick language reflexes like entrepreneurs. Or the linguistic skills of politicians will be higher than those of computer experts. It also means that we have to create many different curricula to serve different target groups. Each syllabus has many different levels, inherited and expanded in concentric circles to serve different levels of language use. In each

such level, there are different topics to ensure the comprehensiveness and diversity of linguistic knowledge, updating actual use of language in the community.

Linguistic knowledge (knowledge of meaning and form) is basically a conceptual structure and semantic expression is basically a conceptual expression. According to the cognitive linguists, the syntax, phonetic, and phonological manifestations are fundamentally conceptual because sounds and utterances must be generated at the output and perceived at the input of the perception processes that govern the activities of speaking - writing, listening – reading, which are both related to the brain. Applying this, when teaching language, we should take advantage of the existing conceptual structures inside the learners to compare similarities and differences with L2 conceptual structures to help learners easily draw the cognitive rules for themselves when using L2. We should start with the similarities before coming to the differences. For example, with English speakers, they already have the structure of *What's your name?*, so we should help them to approach the similar way of saying as *Как тебя зовут?* (Russian); *Come ti chiami?* (Italian) before coming to other ways of saying as *你叫什么名字?* (Chinese); *Bạn tên là gì?* (Vietnamese), etc.

Besides, cognitive processes, which govern the use of language (especially the creation and transmission of meaning in language), are the same as other cognitive abilities in principle. This means that the organization and extraction of linguistic knowledge is not much different from the organization and extraction of other knowledge in the brain. And the cognitive abilities that we apply when speaking and understanding are also not much different from the cognitive abilities that we apply to other cognitive tasks such as visual perception, reasoning or movement. Therefore, language is a human cognitive ability and, from a cognitive point of view, language is real-time perception and the over-the-time generation of strings of isolated, structuralized symbolic units. Therefore, when teaching language, we should consider the language as raw materials to provide for our students, and at the same time, we should teach them the ways of processing raw materials to create the final product, the language of the native people. When teaching we should apply the method as visually vivid and practical as possible. That we can use images, movies or field-trips is the best because these things will be more useful for the intellectual organization of the brain than we use the language itself to define the language. For example, when teaching the topic *Going to the market*, if we have a short video describing this process, the lesson will be extremely lively and effective. We do not have to struggle to use the language to define what *Going to the market?* *buying*, *bargaining*, *paying* are. Students are equally hard-pressed to memorize so many linguistic codes.

The second principle of Cognitive linguistics is that semantics and grammar are conceptualization. This principle states that the approach of Cognitive linguistics is contrast with true - false conditional semantics, which is also dominant in linguistics like generative grammar. Cognitive linguistics argues that it is not possible to attribute the conceptual structure to the simple correspondence of true - false conditions with the world. It states that a key aspect of human cognition is the conceptualization of experience for communication and the conceptualization of the linguistic knowledge we have. Therefore, it is necessary to study all aspects of the conceptual structure such as the structure of categories, the organization of knowledge and especially the leading role of grammatical variables and structures in the structuralization of experience in separate ways; as well as the process of conceptualization in lexical semantic phenomena such as polysemy and metaphor and some other semantic lexical relations.

Thus, according to this principle, we must teach students that when learning language they must think in that language, live in that language because there is no one-by-one correspondence with their language. We also have to help them understand that what they

learn is just a variation but in the most orthodox and most common form of the language, not the only one, not what they learn is right, what they encounter outside in reality communication is wrong or vice versa. For example, when they study at school: *My name is Nam., What is your job?, What time is it?*, etc. but when they communicate in reality: *I'm Nam., What do you do?, What is the time?*, etc. Besides, we also have to find suitable ways to handle complicated cases of language such as polysemous words, metaphors, metonymies, conversation implications, etc. For example, we should decide that at the elementary level, they only learn words with literal meaning, no implications, no metaphors and specify at what level they can learn metaphors, at what level they can learn implications. The important thing is that that division must be reasonable, scientific to meet the language needs of students in the best way.

The next principle of Cognitive linguistics is that linguistic knowledge arises from the use of language. This principle contrasts with both the generative grammar and the true – false condition semantics, which assume that general and abstract diagrams and categories (sometimes considered innate) are what govern the organization of knowledge and attribute to many grammatical and semantic phenomena with "peripheral" status only. The Cognitive linguists stated that the categories and structures in semantics, grammar, lexis and phonetics are all built on the basis of our cognition of specific statements while using them. This process of abstraction and diagramming does not lose subtle (conventionalized) differences even between grammatical structures and very distinct lexical meanings. A detailed analysis of subtle changes in syntactic behavior and semantic explanation will create a grammatical expression model that contains both specialized (inherently peripheral) patterns and very general patterns of linguistic behavior. It can be seen through the applied models as in the Fillmore's semantics of understanding, in Cruse's dynamic structural view of categories, in the new theory of structural grammar, in the usage-based models of lexis and phonetics, etc.

Regarding this in teaching English, people have categorized the basic models on which English teaching is based. In language teaching we should also determine which are the basic models to teach as a second language for students whose mother tongue is other languages. The Common European Framework of Reference (CEFR) is also a form of application of the third principle mentioned above. In order to assess the students' ability to comprehend the language, we should study and set up a standardized assessment framework similar to the CEFR. We must set the criteria for that framework scientifically to apply internationally, to be internationally accredited as CEFR accreditation. If so, it will be a great success in promoting the language that we ourselves must actively implement.

In the language teaching process, we need to study when the speaker generates (and listening comprehensively) the words and sentences, what happens in his mind, how he will describe the attributes of things and associations, his impressions of that thing. It is found that the attributes described by the speaker seem to reflect the way he perceives the world around and interacts with that world. Our accumulated experiences of the world are also stored in everyday language and so, those experiences can be gained from the way we express our thoughts. We should examine issues such as perception categories, image schemas, prototypical models when categorizing things. Through those observations, we will have appropriate measures to encourage positive factors for students to learn the language or to limit the inappropriate, obstructing factors.

For example, Koreans have a similar way of organizing information to Vietnamese, so we encourage them to apply the way of information organization in Vietnamese. Europeans have different ways of organizing their information, so we have to find other rules to help them organize information in Vietnamese. For example, Europeans say *a beautiful house* while in Vietnamese it is *một ngôi nhà đẹp* (a house beautiful). So we can show them a reverse rule for this case Vietnamese will have a way of organizing information as *a house*

beautiful. In English, important information usually comes the latter but in Vietnamese important information often comes the first.

Some Applications

Teaching Vocabulary

Sweetser argued, “a pervasive and coherently structured system of metaphors underlies our tendency to use vocabulary from the external domain in speaking of the internal domain” (1990, p. 49). Metaphor is used when a word belonging to one cognitive domain is conceptualized in terms of a different one. Usually, an abstract domain is conceptualized in terms of a more familiar, more physical one. That is one of the reasons why metaphor abounds in technical or scientific discourse because of its abstract nature. Many examples of metaphor can be found in technical English. For example, civil engineering structures can undergo “stress” or “strain”, “torsion”, “tension” and “fatigue”. They can also “age”, “fracture”, “be dynamic” and “have degrees of freedom”. Concrete can be “cured” and can also “bleed”, “sweat” or “weep”. The underlying mapping in these examples consists of conceptualizing these elements as if they were living things. Lakoff (1992, p. 37) said: “the experiential basis of metaphor”. Their function is making technical descriptions more accessible by establishing parallel correspondences between two different conceptual domains: an abstract one on the behavior, functions or reactions of engineering structures is conceptualized using physical terms on body behavior, functions or reactions. The latter domain activates physical and concrete mappings which are more immediate to our experience (figure 1).

Mapping	Source Domain BODY	→	Target Domain ENGINEERING STRUCTURES
	CORRESPONDENCES		
Engineering structures undergo physical damage			stress strain fatigue torsion fracture collapse

Mapping	Source Domain BODY	→	Target Domain CONCRETE
	CORRESPONDENCES		
Concrete has physical reactions			bleed sweat weep

Figure 1. Examples of metaphorical mapping in technical language

What are the implications of highlighting the use of metaphor in technical terminology? First, it could make easier the teaching of vocabulary. The metaphor mechanism provides a certain unity to the otherwise isolated terms, directly fostering their retention in long-term memory. Secondly, the study of sub-technical vocabulary can be better appreciated if structured in terms of meaning extensions or meaning chains.

Teaching Prepositions

Traditional linguistic approaches treated the multiple meanings associated with prepositions as arbitrary. These approaches also offered imprecise propositional definitions for the prepositions. Traditional pedagogical approaches followed suit and presented the meanings of prepositions as a list of unrelated, vague dictionary-type definitions; the recommended strategy for learning has long been memorization. However, the development of the principled polysemy model (Tyler & Evans, 2003) clearly demonstrated that by re-envisioning the nature of language and tying the forms it takes to established principles of

human cognition and embodied experience, the semantics of prepositions are systematic and motivated. Learning the multiple uses and subtle distinctions between English prepositions is a well-recognized challenge for L2 learners. Brugman (1988), Lakoff (1987), and Vandeloise (1994), Tyler and Evans (2003) saw that the many meanings associated with all English prepositions can be accounted for in terms of systematically related meaning networks (polysemy networks). They hypothesized that the Cognitive linguistics-based analyses and their motivated polysemy networks have the potential to provide more precise representations of the meanings of individual prepositions and useful rubrics for learning the multiple meanings associated with each preposition. The key concepts which formed the basis of the analysis of prepositions' meanings are the familiar notions of the communicative nature of language, embodied experience, especially the original spatial nature of prepositions, linguistic units as labels for spatial scenes, varying construals on scenes, and knowledge of real world force dynamics, metaphor and experiential correlation, prototypes and networks and the role of frequency and grammaticalization in meaning extension. To native speakers, each preposition has a different meaning and would be used to convey a different perspective on the scene. However, L2 learners often have to struggle hard to make these distinctions with consistency and confidence. This is probably true for most languages, as attested by Lam's (2009) study of English learners learning Russian prepositions such as *за*, *на*, and *в*. The findings from the experiments suggest that Cognitive linguistics provides the tools for re-conceptualizing prepositional meaning in ways that are accessible and useful to L2 learners. Here are some examples.

First, we examine the case of *in* and *out*. There is a universal general conceptualization that when we move from an open, broader space outside to an enclosed, narrower space inside, that is moving *in*; and vice versa, that is moving *out*. Then, this conceptualization is brought into language. And we have expressions at all levels of language as *in the room*, *go in*, *get out*, *in the program*, *in my opinion*, *out of stock*, etc. This is perfectly true for all disciplines, all cultures.

Second, we examine the case of *to*, *for* and *at*. Here is an exercise for our students to fill in the blanks with appropriate prepositions.

- a. The window faces _____ the east.
- b. Harry ran _____ home base.
- c. Jaime gave the flowers _____ Pilar.
- d. Rafael was always kind _____ us.
- e. This lettuce tastes delicious _____ me.
- f. Sofie worked _____ the limits of her abilities.
- g. The store was so crowded, people stood shoulder _____ shoulder at the sales table.
- h. Danny nailed the board _____ the fence.

The answer may be a surprise. However, one preposition can be used to fill in all the blanks. That is the preposition *to*. So, now, what are their different meanings conceptualized in the preposition *to*? Here is the answer.

- a. The window faces **to** the east. **Oriented in the direction of**
- b. Harry ran **to** home base. **Goal**
- c. Jaime gave the flowers **to** Pilar. **Receiver**
- d. Rafael was always kind **to** us. **Receiver of experience**
- e. The lettuce taste delicious **to** me. **Receiver of perceptual experience**
- f. Sofie worked **to** the limits of her abilities. **Limit**
- g. The store was so crowded, people stood shoulder **to** shoulder at the sales table. **Contact**
- h. Danny nailed the board **to** the fence. **Attachment** (after Tyler, A. 2012, p. 135)

Everything would not be so hard for learners and teachers if learners were provided

the meaning map of *to* before they do the exercise. It would be clearer to understand, to explain, easier to do and to be memorized.

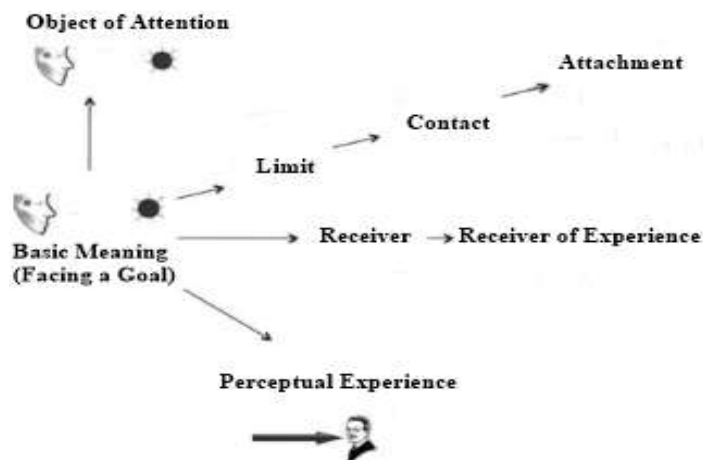


Figure 2. *To* meaning map (after Tyler, A. 2012, p. 137)

Teaching clauses

A clause is a meaningful combination of words that contains a subject and a verb, can express a complete thought. In our understanding of the structure of language, traditional approaches represent the syntactic patterns as slots to be filled with grammatical word types:

The wind	blew	the paper	off the table.
subject	verb	object	prep phrase

In contrast, a Cognitive linguistics approach represents the same sentence in terms of the participants in a familiar scene:

The wind	blew	the paper	off the table.
Causer	Caused motion	Undergoer	Path

Sentences which seem to present the same propositional content but display different forms, alternating syntactic forms, are treated as separate constructions providing different construals on the scene. Goldberg (1995) gave the connections among Construction, Meaning and Form, reflecting scenes that are basic to the human experience, such as “something moving” and “someone transferring something to someone else”, very humanly relevant scenes.

Table 1. English Argument Constructions

<i>Construction</i>	<i>Meaning</i>	<i>Form</i>
Cause to receive	X CAUSES Y to RECEIVE Z	Sub V Obj Obj2 Pat faxed Bill the letter
Caused motion	X CAUSES Y to MOVE Z	Sub V Obj Oblique Pat sneezed the napkin off the table
Resultative	X CAUSES Y to BECOME Z	Subj V Obj Xcomp She kissed him unconscious
Intrans, motion	X MOVES Y	Subj V Oblique The fly buzzed into the room

Through the examples, we can see that teaching learners with what is happening around them, with “humanly scenes” can help them acquire the new language easier despite their disciplines, their cultures, their backgrounds because the constructions are authentic, simple

and lively. Learners can get rid of unfamiliar, jejune, vague, notation-like and hard to remember, recall and explain clearly like this way.

David	gives	Mary	a cake.
Subject	Verb	Object 1	Object 2

Instead, it will be a lot more vivid with this way of teaching and learning.

Someone	to give	Someone	Something
David	gives	Mary	a cake.

CONCLUSION

In the context of globalization and global integration today, the development perspective focuses on multi-sectoral, inter-disciplinary and cross-disciplinary development. With the current scientific development, all researches must have an inter-disciplinary and cross-disciplinary nature. Education today must promote these factors because of the wide specialization demanded by job markets. The training objectives need to be changed in the direction of promoting creativity, developing personal ability, being inter-disciplinary and cross-disciplinary as much as possible. The thinking of teaching and learning needs to be changed in a new way so that learners can both acquire knowledge and apply it creatively in practice. There should be a combination of traditional methods (presentation, conversation, practice, etc.) with new methods (problem solving, case study, action-oriented teaching, etc.) towards high practicality, maximum time savings but the most effective and practical application. Therefore, we should always try our best to research and explore the optimal methods and approaches to teach language so that learners can learn the best and fastest, meeting the highest requirement of learners' purpose of learning.

REFERENCES

- Brugman, C. (1988). *The story of over: Polysemy, semantics and the structure of the lexicon*. New York: Garland Press.
- Dogan, M & Pahre R. (1990). *Creative Marginality: Innovation at the Intersection of Social Sciences*. Boulder & Oxford: Westview Press.
- Edwards, P. (1996). The LSP teacher: to be or not to be? That is the question. *Ibérica* 0:9-25.
- Goldberg, A. E. (1995). *Constructions: A construction grammar approach to argument structure*. Chicago, IL: Chicago University Press.
- Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago, IL: University of Chicago Press.
- Lakoff, G. (1992). *The Contemporary Theory of Metaphor*. In A. Ortony (ed.) *Metaphor and Thought* (2nd edition). Cambridge: Cambridge University Press.
- Lam, Y. (2009). Applying cognitive linguistics to the teaching of the Spanish prepositions *por* and *para*. *Language Awareness*, 18(1), 2–18.
- Rigol V. R. & Roldán R. A. (1992). Dos casos prácticos de colaboración interdisciplinar para alumnos aventajados de inglés. *Actas de las Jornadas: La innovación emergente como medio de mejora de la calidad de enseñanza en la ingeniería*, 58-70. Madrid: ICE.
- Sweetser, E. (1990). *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge, UK: Cambridge University Press.
- Tyler, A., & Evans, V. (2003). *The semantics of English prepositions: Spatial scenes, embodied meaning and cognition*. Cambridge, UK: Cambridge University Press.
- Tyler, A. (2012). *Cognitive linguistics and second language learning: Theoretical basics and experimental evidence*. New York: NY: Routledge.
- Vandeloise, C. (1994). Methodology and analyses of the preposition *in*. *Cognitive Linguistics*, 5(2), 157–184.