Cognitive Perspective in SLA: Pedagogical Implications for Enhancing Oral Proficiency in Foreign Languages

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Abstract

The following article addresses one of the main concerns of the profession: maximizing efficiency of teaching for oral proficiency. The main goal of this article is to explore yet untapped potential of the Cognitive Perspective in SLA -- an interdisciplinary approach to language and language learning. In this article, we report on how Cognitive Perspective has completely transformed our conceptualization of the ways language can be taught to foster students' ability to use the language. The article delineates pedagogical principles of Usage-Based Instruction (UBI), an innovative approach to teaching oral communication in foreign languages and provides description of the UBI instructional sequence.

Introduction

What level of oral proficiency do students generally reach after several years of language study? In 2010, the Center for Applied Second Language Studies conducted a study to answer this question. The study (CASLS, 2010) found that out of 6,265 students, who had been studying Spanish and French for 4 years (630-720 hours of instruction), only 6% reached Mid or High Intermediate levels of proficiency with the remaining majority not even crossing the threshold between the Novice and Intermediate levels in speaking.[1]

We will begin this paper with the claim that one of the possible reasons for low efficiency in teaching students to communicate orally in a foreign language is a disconnect between the psycholinguistic reality of speech production and the general practice

of teaching languages. To substantiate this claim we will rely on today's perhaps most influential psycholinguistic model of speech production developed by Willem Levelt, in which we will identify several areas where the traditional teaching paradigm does not seem to be quite in sync with the psycholinguistic reality of speech production. At that point, we will introduce an alternative view of the language and language learning known as the Cognitive Perspective in SLA, followed by the outline of its main tenets. Finally, we will describe an effort in which instructors of a small private Midwestern University undertook a complete revision of the foreign language curriculum based on the theoretical underpinnings of the Cognitive Perspective. Description of the Usage-Based instructional sequence will conclude the article.

Levelt's Model of Speech Production

Understanding cognitive processes involved in L2 production is fundamental for determining if teaching for oral proficiency is in sync with the psycholinguistic reality of language processing in speech production. Willem Levelt's model of speech production (1993) is today's perhaps most influential model which describes the process of speaking from intention to articulation. According to Levelt, speech production process consists of several relatively autonomous components: **conceptualization**, **formulation** and **articulation**, and **mental lexicon**.

Conceptualizing is primarily deciding on what to say or express. Here, decisions about the speech acts, the ordering of the information, the perspective, the style, and the register of the utterance are made. The output of conceptualizing is a yet non-linguistically encoded pre-verbal message. The Formulator converts the pre-verbal message into a speech plan and involves two major processes: *grammatical encoding* and *phonological encoding*. Grammatical encoding process begins with the retrieval of lexical items from the Mental Lexicon. Contemporary linguistics and psycholinguistics see mental lexicon as a huge container of language knowledge. According to Clark (1994) mental lexicon is organized as a dictionary, a mental list of lexical items together with detailed information about it. Each

lexical entry includes at least four kinds of information: a. meaning: b. syntax c. morphology d. phonology.

The Mental Lexicon is also the place where the formulaic language is stored. Formulas can be of different types (idioms, multiword phrases, and collocations) (Kormos, 2006, p. 45). The important thing is that they function as other lexical items in the mental lexicon, i.e., are retrieved from memory as one unit. For example, a native speaker of English will retrieve the phrase "I regret to tell you" as one memorized unit from the lexicon, rather than accessing the words that make up the phrase one at a time and create an utterance based on the syntactic rules of the language. Research shows that formulaic language constitutes the bulk of speakers' knowledge of the language and speakers have hundreds of thousands of them at their disposal (Bolander, 1988; Richards & Schmidt, 1983; Pawley & Syder, 1983; Myles, Hooper, & Mitchell, 1998; Sinclair, 1991). In fact, only a minority of spoken clauses are entirely novel creations. "Memorized sentences and phrases are building blocks of fluent speech and models for creation of many new sequences" (Pawley& Syder, 1983, p. 208)[2].

In Levelt's model, the process of grammatical encoding begins with the retrieval of lexical items from the mental lexicon. Lexical items are retrieved with the information that is relevant for the construction of the word's syntactic environment. The second step of formulating is phonological encoding. In the Articulator, the phonetic and articulatory plan is executed. The product of articulation is overt speech.

One of the crucial characteristics of the process of speech production is its automaticity. The only exception is the conceptualizing of the message: the speaker, no doubt, monitors messages *before* they are sent to the formulator, i.e., *what* she or he wants to say. All other processes, however, are automatic and are executed without intention or attention. In addition to this, they are remarkably fast and almost reflex-like: speech is produced at a rate of about two or three words per second.

Levelt's model reveals a number of incongruities with today's dominant teaching paradigm. First, as the model demonstrates, lexis and grammar represent an inseparable unity. Moreover, speech is lexically driven in that lexical components precede and pre-determine syntactic processing. In the meantime, most of today's foreign language textbooks treat grammar and lexis separately and fail to reflect this crucial characteristic of speech production.

Second, in Levelt's model, grammar is tied to individual words, i.e., is stored in lexical entries and constitutes part of the speaker's lexical knowledge. This seems to run counter to the commonplace practice of using generalized rules in instruction: learners are usually provided with the rules that apply to a group of words. The hope is that explicit knowledge of generalized rules will be applied to specific language instances, will become implicit through practice (Ellis, R. 1993), and will be applied to all the new words students will be acquiring.

Third, in Levelt's model, most attentional resources are allocated to meaning (conceptualizing). This, compounded with the fast rate of speech, does not leave much time or attentional resources for conscious application of rules during the formulating process. Put simply, when we produce speech we cannot think *what* to say and *how* to say it at the same time. This again points to the critical role of automaticity: without it the two processes (conceptualizing and formulating) inevitably interfere with each other. In the meantime, today's emphasis on the creative aspect of language learning encourages students to create with the language while applying these rules at the same time.

The above incongruities may be attributed to the fact that today's dominant teaching paradigm relies on Generative (Chomskyan) Linguistics (Ellis, 2001). According to Generative Linguistics, the mind has a module for language acquisition – language acquisition device (LAD) – that is unique, autonomous, and separate from the rest of cognition. Knowledge about language, according to this view, is "competence grammar", a complex set of rules and constraints that allows people to distinguish grammatical from ungrammatical sentences (Ellis, 1998). Consequently, the

approach to language learning that accompanies this view of language emphasizes the need for the learner to memorize the rules, a list of vocabulary items that plug into the rules, as well as a list of exceptions to the rules (Tyler, 2012). The next section of the article will introduce an alternative view of language and language acquisition, which, in our opinion, has a potential for bringing teaching closer to the psycholinguistic reality of language processing in speech production.

An alternative view on language and language learning: Cognitive Perspective in SLA

Cognitive Perspective in SLA is an interdisciplinary field, which draws on research in cognitive linguistics, cognitive psychology, psycholinguistics, artificial intelligence, and construction grammar. Below we underline the key tenets of the Cognitive Perspective that have informed and inspired the Usage-Based Instruction (UBI), the pedagogical approach to teaching oral communication this article describes.

One of the major claims of Cognitive Perspective in SLA, which puts it in direct contrast with the UG, is that learning a language is like learning anything else (Ellis, 1998), and that LAD, an autonomous language acquisition device responsible for language, does not exist (Littlemore, 2009). Second-language acquisition is just a special case of more general learning and employs cognitive abilities used in non-linguistic tasks (Langacker, 1999).

Moreover, underlying language acquisition are simple associative learning mechanisms (Ellis, 2001). The reader may recall that laws of association constitute the basis of the theory of human learning and include the law of contiguity (two things become associated when they occur together in time and space); the law of contingency (one stimulus predicts the occurrence of the other); the law of effect (responses that produce a satisfying effect in a particular situation become more likely to occur again in that situation); and the law of exercise (associations become more strengthened the more often they are repeated or exercised). In addition to this, formation of associations depends on memory, relies on reinforcement, frequency,

and distribution of practice (spaced or distributed practice results in stronger associations) (Lieberman, 2012).

In language acquisition, associative learning leads to the creation of form-meaning connections between meaning and a phonological and morpho-syntactic form. Put differently, acquiring a language is acquiring associations between form and meaning and using these associations to produce novel responses by on-line generalizations (Ellis, 1998).

As any associative learning, associative learning in language acquisition relies on cues **(**MacWhinney, 2001; Ellis, & Larsen-Freeman, 2006**).** Cues vary in different languages and include word order, subject verb agreement, object verb agreement, case markings, and so on. The most basic determinant of cue strength is its frequency. The more entrenched a form, the easier it is to retrieve (Ellis, & Larsen-Freeman, 2006).

A central role is attributed to memory: language use, automaticity in speaking and even emergence of creative linguistic competence are all seen as memory-based phenomena**.** The knowledge underlying the use of language is the learner's "entire collection of memories of previously experienced utterances" (Ellis, & Larsen-Freeman, 2006, p. 564), recycling of what has been memorized from prior use. In other words, much of what we say is not constructed word by word with the help of syntactic rules, but consists of sequences of words and phrases retrieved from memory as one unit (Bolinger, 1976, Pawley & Syder, 1983). Likewise, automaticity in performing encoding operations is not so much a result of practice in applying rules but is a simple memory retrieval process.

Cognitive Perspective also challenges the main postulate of the UG about language as a rule-governed behavior. Rather it sees language as a by- product of communicative processes derived from and informed by language use rather than by an abstract set of rules. Therefore, language learning is said to be usage-based. Although language behavior can be *described* as being rule-like, linguistic descriptions are seen to be very different from the mental

representations that underpin performance (Ellis, 2003). Rules captured by linguists are just descriptions, but not a condition of development.

Learning a language is exemplar-based: human language production and understanding is based on a store of concrete "exemplars" from which regularities are abstracted rather than on linguistic rules. Practice makes samples or language exemplars become readily available for the speaker. Language, in Cognitive Perspective, is learned inductively. Recall that learning without direct instruction is referred to as inductive learning and involves the process of *learning by example* – rules are inferred from examples of observed instances.

Cognitive Perspective emphasizes form-meaning linkage: grammar and lexis are considered to be inseparable, with meaning (rather than syntax) being central to language learning. The inseparability of meaning and structure manifests itself in the main unit of language learning: constructions (Goldberg, 2003). Constructions, defined as "conventionalized pairings of form and function" (Goldberg, 2006, p. 3), represent form-meaning mappings, entrenched as language knowledge in the minds of learners. Their morphological, syntactic, and lexical forms are associated with particular semantic, pragmatic, and discourse functions (Ellis, N., 2003). Put simply, constructions are form and meaning pairings, a pattern in which the form is associated with a particular function.

According to Goldberg, any linguistic pattern or pairing of form with function is recognized as a construction. Constructions exist on all levels of grammatical analysis and cover "morphemes and words, idioms, partially lexically filled and fully general phrasal patterns" (Goldberg, 2006, p. 5). Any utterance is comprised of a number of constructions that are nested beginning with the individual words themselves (Goldberg, 2003).

Knowledge of a language is knowledge of the constructions in the language and comprises vast numbers of constructions (Langacker, 2005) "Language is constituted by a structured network of constructions as conventionalized form-meaning-use

combinations used for communicative purposes" (Ellis & Larsen-Freeman, 2009, p.92). Acquisition of constructions begins with input. Through use, they become ingrained as grammatical knowledge in the speakers mind. Underlying the acquisition of constructions is the process of chunking, comparable with, for example, memorizing of long telephone numbers (Bolander, 1988). As we learn the language, we parse the speech stream into chunks, which mark the meaning (Ellis, 2001).

The main tenets of Cognitive Perspective in SLA became inspirational for us in the development of what we call Usage-Based Instruction, further referred to as the UBI, an innovative approach to teaching oral communication in a foreign language.

The UBI: the main features

In this section, we lay the major principles of the UBI which we have been using for a number of years in a small university setting in teaching two less commonly taught languages – Russian and Polish. We admit to having borrowed the term *Usage-Based Instruction* (UBI) from Usage-Based Linguistics, which sees language not as a collection of rules but as a by-product of communicative processes and language learning as usage-based, i.e., derived from and informed by language use. Learners' linguistic system, the cognitive organization of language, is based directly on experience with language or usage events: instances of speakers' producing and understanding language exemplars (Barlow and Kemmer, 2000). As learners practice hearing and producing the language, they begin to make generalizations and abstract regularities from examples of previously heard or spoken utterances. "An individual's creative linguistic competence emerges from a combination of memories of all the utterances in their entire history of language use and from frequency induced abstractions of regularities within them" (Ellis, 2006, p. 101).

Consequently, one of the distinctive features of the approach that we are about to describe represents a radical departure from the grammar-driven curriculum: grammar does not serve as an organizing principle of the course and grammatical considerations are not taken

into account in designing the course. The course is 100% theme-driven. This is not to say that learners do not acquire grammar. It is imbedded in language samples that students learn to use and is taught inductively through the process of *learning from examples*. Moreover, the strictly thematic organization of the course often results in students' beginning to use advanced features of foreign language grammar that are normally taught much later in the course (reflexive verbs, perfective vs. imperfective forms, subjunctive forms, etc). The emergence of grammar items, however, is completely pre-determined by the way the theme or the sub-theme develops.

Construction as a unit of learning

Following one of the main tenets of Cognitive Perspective, the UBI uses construction as the basic unit of language learning, and language course is seen as a process of adding up new constructions to the learner's developing linguistic system. Learners first learn constructions with particular lexical items. Practice and constant recycling of constructions eventually leads to these becoming ingrained as grammatical knowledge in the learner's mind. The expectation is that once a sufficient number of examples of constructions is accumulated in long- term memory, learners will begin to develop abstract schemas of constructions which will eventually enable learners to fill them with new lexical items. This expectation is in sync with the ACTFL Proficiency Guidelines according to which while at novice level, oral production consists of high-frequency learned utterances, the speech of intermediate speakers demonstrates the ability to create with the language by combining learned elements, which serve as foundation for creating novel utterances. The main pedagogical benefit of using construction as a unit of learning is the fact that it combines form, meaning and function; and lexis and grammar can be taught in unison. Another important benefit is the fact that constructions allow more vivid comparisons between the ways one and the same meaning is expressed in the two languages.

Using construction as the main unit of learning means that the learning outcomes of the UBI course as well as individual lessons' objectives are articulated in terms of, and built around, constructions

students will be able to produce by the end of the class, course or thematic unit. Constructions are identified as specific language exemplars within specific conversational themes and each class is seen as a set of activities aimed at facilitating acquisition of these exemplars. Examples of such outcomes include: *Saying in what American state you live* or *Saying "I live in Illinois, Michigan etc.*", *Indicating your academic major* or *Saying* "*My major is accounting, biology, English etc.*" Our experience indicates that setting goals in terms of specific language exemplars rather than goals stated too broadly (as, for example, *Talking about/discussing your academic studies* or even *Describing events in the past or future tense)* as it is practiced by textbooks, helps both the instructor and the students to better focus on specific learning outcomes and experiences. As Ellis succinctly puts it (1998): the learners do not care about theoretical analysis of language; the learners want to acquire the label-meaning relation.

Following the pedagogical principle of backward design, the process of selecting constructions to be mastered in the course of study is filtered through the course's final assessments. In the university setting described in this article, one of the summative assessments targeting Standard 1 is Oral Performance Interview, which partly replicates its prototype, the ACTFL Oral Proficiency Interview, in that it has a format of a casual conversation between the tester—usually the instructor—and the examinee. Unlike the official ACTFL OPI, our Oral Performance Interview is more structured and predictable in that it touches only upon the repertoire of contexts the course covered.

Another factor used in selecting constructions to be mastered by the end of the course is the course thematic structure. Constructions are selected and taught within specific theme contexts. In the elementary foreign language courses, the range of topics covered revolves around students' life, and beginning curriculum themes mirror the scope of themes normally discussed at the ACTFL OPI with a Novice- Mid Novice –High or Intermediate-Low language speakers. The overarching theme of the first two semesters of study (roughly 80 hours of instruction) is "All about Me."

The UBI relies on associative learning

Following one of the main claims of the Cognitive Perspective that associative learning underlies learning constructions, the goal of the UBI is to establish strong form-function associations between the construction's phonological and morpho-syntactic structure and its meaning. In the process of learning, one element (form, in our case) is taught through association with a separate, co-occurring element (meaning) so that a connection is formed between these two elements in the brain, and activation of one element automatically leads to activation of the other. "If two neurons within the network are active at the same time, the connection between them will be strengthened, so that future activity in one will be more likely to produce activity in the other." (Lieberman, 2012, Kindle Locations 10321-10322)

The process of learning is both input and output based and follows the route from *focused input* to *scaffolded output*, and from *scaffolded output* to *unaided output*. In what follows we will briefly describe the UBI instructional sequence.

Instructional sequence

Constructions are presented with no or very little grammatical explanation but as a way of expressing familiar meaning by means of L2. The teacher may choose to begin instruction with putting the example sentence on the board and pointing out the differences between the L1 construction and its L2 counterpart.

Constructions are introduced and taught incrementally. For example, the construction "I am a first/second/third/fourth year student" has two distinct nested constructions: *I am* and *a first/second/third/fourth year student*. These elements of the larger construction are mastered by learners separately and are gradually incorporated into a larger construction. We will use this construction to illustrate how this is done in the UBI while comparing it with a more traditional treatment.

The construction *first/second/third/fourth year student* incorporates ordinal numerals. Traditionally, this topic is introduced as part of grammatical instruction. For example, the popular Russian textbook *Golosa*, contains a two-page explanation (pp.139-140) which includes a full declension paradigm of the ordinal number *the third* and detailed comments on stress, soft vs. hard adjectival endings, fleeting vowels and so on. Two drills follow these highly technical comments: in both, students are provided with cardinal numerals from which they have to form ordinal numerals. This approach seems to be problematic as being not psycholinguistically valid: it is rather unlikely that native speakers of the language ever perform anything similar to this operation in their mind when using ordinal numerals. Contrary to this approach, the UBI treats the words *first, second, third and fourth* + *student* as a string of lexical items to be committed to memory through a variety of activities described below.

Focused Input

Once the students connect the morpho-syntactic and phonological form with the meaning, they begin to aurally acquire the new construction through a variety of highly structured input activities. Since learners do not have thousands of hours of authentic input children have when they learn their first language, learners are exposed to specific instances of the targeted construction. To facilitate intake, the UBI generally follows the recommendations of Lee and VanPatten (2003). At the beginning of the input activities, learners are not required to produce a target structure, although they may produce isolated words or short phrases that do not contain the structure. A lot of activities at this stage of instructional sequence are conducted with visual aids, both pictures and gestures. Thus, to represent the construction *first/second/third/ fourth year student*, the instructor can use numerals I, II, III, IV. She may write or display pictures with these numerals on the board and have students watch and listen as she points to the picture and says the corresponding target language phrases: *I am the first-year student. I am the second year student.* In this way, the link between the meaning and form is first established. It is important that at this stage the students *do* something with the input (Lee & VanPatten, 2003). For example, the instructor may have one or two students come to the board and

point to the corresponding picture as she says a target language phrase. Other possible input activities include: *thumbs up/down* activity, *true/false* activity, modeling, asking students to get up if the phrase they hear applies to them, and so on.

The instructor then may slowly proceed to forced choice activities in which students begin to produce the target structure while it is still in their short-term memory. This is an extremely important intermediate step between input and output activities. Its importance derives from the role of phonological loop in forming stable, long–term mental representations (Martin K & Nick Ellis, 2012)

It is important that input activities are provided in sufficient amount and meaning is paired with the form many times to create strong associations to prevent premature error-laden output. Following the input phase a series of communicative activities gradually leads students from comprehension to full production. The next stage in the UBI instructional sequence is *scaffolded output.*

Scaffolded Output

The function of the instructor at this stage is to lighten student's mental overload associated both with thinking about the form and meaning of the utterance i.e. both *what* to say and *how* to say it. There are several ways to provide such scaffolding: for example, a teacher may present students with personalized questions and provide them with possible answers to these questions before the question-answer session. Guided monologues or guided dialogues, in which a student or two students speak from simultaneous prompts provided by the instructor are also examples of scaffolded output.

It is important to note that the UBI is highly personalized, students never have to talk about fictitious characters such as textbook Senior Gonzales or Herr Műller but only about themselves, their friends, families and classmates. Personalization contributes to deeper processing of the language constructions learned (after all, people like to talk about themselves) and consequently better memorization and transfer into the long-term memory (Lieberman, 2012).

Distributed Practice

In providing distributed (spaced) practice we take as a point of departure the idea that associations are strengthened through usage and practice over extended periods. Practice is much more effective when it is spaced than when it is massed. It produces better learning, especially if the measure used is long-term retention of knowledge (Lieberman, 2012).

The goal of distributed practice is complete automatization of linguistic encoding operations. As Levelt's model demonstrates earlier in this paper, automaticity of linguistic encoding operations is a crucial aspect and condition of smooth fluent speech production. The UBI sees practice for automaticity as repeated memory activation. Since frequency is the main factor in memorization and automatization, every effort is made to ensure that once learned the construction re-occurs multiple times in practice distributed over prolonged periods of time and much of classroom time is taken by recycling what has been memorized from prior use. Activities should be narrowly focused and naturally repetitive, i.e., vary in the nature of communicative tasks. The challenge for the instructor is to design activities where repetition and focus are both natural.

What classroom activities would be most conductive to automaticity? Since associative learning involves learning specific responses to specific stimuli, much time is taken by question & answer sessions, in which students are taught to respond to a wide variety of questions, in which often a single response is applicable. Following the Lev Vigotsky idea about the fundamental role of interaction between an expert and a learner, the instructor conducts many of such question-answer sessions. In addition to this, students regularly engage in scripted conversations with each other.

Conclusion

In this paper we attempted to demonstrate the application of the main tenets of Cognitive Perspective in SLA in foreign language curriculum design. The effectiveness of this approach, however, has not yet been empirically tested. Some of the potential benefits of the approach are nevertheless already evident although, we admit, they are largely impressionistic.

The main benefit of UBI is early fluency: by the end of the second semester of study (80 hours) students speak in more native-like fashion than in the traditional approach. This might be attributed also to higher course efficiency: students do not have to spend time on the study of grammar or in grammar drills, and are not burdened with excessive terminology. We also notice that although learners begin to learn constructions with particular lexical items, repetitive practice leads to gradual extraction of regularities, and as our experience shows, learners gradually expand the constructions to apply to new lexical items and begin to recombine the patterns, thus demonstrating the ability to create with the language.

As learners practice using earlier memorized constructions in novel conversational contexts, their reaction time gets faster and conversations are conducted in a normal, almost native speaker rate, are effortless and virtually errorless. This increases the learner's self-confidence and pleasure in using the target language and serves as a powerful reinforcement mechanism: the students' reward is their success in uncorrected, smooth, error-free production in speaking. We see it as an extremely important outcome since associative learning requires positive reinforcement, which has obvious motivational benefits.

Benefits for cultural awareness are also obvious: rather than using culture as simple addendum, the UBI does not shy away from explicit comparisons between FL and the corresponding TL constructions, demonstrating to the students that languages are not neutral coding systems and how speakers of different languages organize non linguistic material in language specific ways. Obviously more research is needed to investigate the efficiency of UBI. We see it as the next step in the development of Usage-Based Instruction.

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[1] Equally troubling is the situation at the post-secondary educational level. According to Long et al, a typical American language and literature major is lucky to achieve level 2 of Interagency Language roundtable after four years of study with the median attainment after four years of harder languages being only ULR 1, (Long at al, 2012, p. 100).

[2] Since formulaic language is not the main topic of this paper, readers may want to learn about its important role in the way language is acquired, processed and used from the extensive bibliography in one of the recent publications on the subject (Millar, 2011)