Cognitive Linguistics (CL) makes the functional assumption that form is motivated by meaning. CL also analyses form-meaning pairings as products of how cognition structures perception. CL thus helps teachers to fit language to the nature of the cognition that learns whilst devising modes of instruction that are better attuned to the nature of the language that has to be learnt. This paper argues that facets of a new approach are starting to emerge and that these can be broadly isolated according to four principles that comprise: embodied learning, conceptualization, the lexico-grammatical continuum, and usage. The principles interact one with another to consolidate the use of some older classroom methods and to point towards new ways of analyzing and presenting English lexis and grammar. They also set down key principles to direct research into classroom learning.

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Taking the functional assumption that lexical as well as grammatical forms should be analysed as motivated by meaning, Cognitive Linguistics (CL) promises a more direct impact on language teaching than do formal approaches (Langacker, 2008, p. 67). CL treats grammar and lexis as poles of the same semantic continuum and assumes that a language’s mental and social representations are the same. Any “poverty” in the linguistic stimulus is compensated by the richness of the substrata, or by the perceptual structures of an embodied cognition and the imagery that they create from experience (Feldman, 2006). CL thus explores meaning not as grasped directly from the world but as conceptualised out of the way our bodies and minds shape our perceptions, looking at how language encodes the different perspectives from which an embodied cognition construes the same scene. The response of our common anatomy to such environmental features as gravity, temperature, form, and substance ensures that different languages and cultures construe reality through similar imagery. But our environments and our experiences of them also differ in some aspects, ensuring variation in how cultures and languages construe the world. CL therefore treats language learning as (a) matching new
forms to already acquired meanings, (b) understanding the new meanings of new forms, and (c) looking at reality from the new perspectives that these meanings sometimes require (Slobin, 1996).

Deriving a pedagogical perspective from CL faces two initial hurdles, however. First, any evolved form of language pedagogy must treat language as text. Although informed by a functional or social view of language, CL’s attempts to tackle discourse have so far been fragmentary. The other problem is that CL itself is not entirely unified in its approach. The deepest difference concerns the status of grammatical categories. In Langacker’s (1987) Cognitive Grammar approach, nouns and verbs are categories derived from our experience of the world. In Croft’s (2001) Radical Construction Grammar, grammatical categorisations are metageneralisations of the way words are used by grammatical constructions. Yet applied linguists can find that both positions share substantive premises about the nature of language and mind, and hence about how the nature of cognition shapes language and vice versa. This common ground can be summarised as follows:

- Grammar and lexis are on the same semantic continuum.
- Lexis and grammar possess category meanings derived from the conceptualisation of embodied experience.
- Language is acquired as constructions through usage as tokens of types.

This study sets out the above premises as grounds for a classroom approach based on (a) embodied learning, (b) the lexico-grammatical continuum, (c) conceptualisation and the motivated nature of linguistic representation, and (d) usage. It therefore argues that these principles show CL as taking us beyond the search for new ways to isolate and present language content towards a larger consideration of how we may find a better fit between the language content taught and the mind that learns. As with any emerging perspective on pedagogy, however, much that is postulated may be hypothetical in respect of what works in the classroom. Much may also simply provide a new theoretical framing for existing pedagogies. My interest here is thus threefold: first, to summarise the theoretical basis of the above principles; second, to discuss how they help assess language pedagogy; and third, to evaluate whether we know enough about the effectiveness of the resultant methods to justify consolidation of them as a larger approach.

**THE EMBODIED LEARNING PRINCIPLE**

Merleau-Ponty (1962) saw the body as “the third term,” shaping how “mind” experiences “reality” (p. 115). Accordingly, cognition does not
build meaning as a reflexive response to sense experience. Meaning is conceptualised from a mind that is an extension of the body and through a body that is part of the mind. The nature of our bodies attests to the form and substance of what is encountered and so configures the reality we experience, a position now supported by developments in neurological and anatomical understanding. For example, the study of what is called proprioception explores how the body tracks its movements and registers the positions of its limbs relative to itself. The brain thus extends into the body through proprioceptors and these set out a “body map” in the brain. Infants move to explore their world and develop motor skills by grasping at objects. They thus build their image of a phenomenon through the bodily actions that test its function and weight. Meaning therefore develops from movement and the physical grasp of forms (Gallagher, 2005; Gibbs, 2005). We also use the body for meaning-making, or what Charles Peirce called semiotic material (Hartshorne & Weiss, 1931–1958). Language may even originate ontogenetically and phylogenetically in gesture (McNeil, 1992). Gesture both supports meaning making and carries clues to the conceptualisations from which meanings evolve (McNeil, 1992; Negueruela & Lantolf, 2004). Further, the association between language and movement in articulatory processes (Gallagher, 2005) gives phonology “a life of its own,” coercing language to categorise meaning in ways convenient to the sounds the embodied mind can make and differentiate (Taylor, 2002, p. 81).

Associating gesture, locomotion, and articulation with meaning infuses language with the imagery of physical experience (e.g., Johnson, 1987; Kövecses, 2002, 2005; Lakoff & Johnson, 1980, 1999). Thus a metaphorical expression such as keep a balanced view shows balance as conceptualising a positive social goal. In CL, when infants achieve the upright posture central to human experience, they build a series of mental associations around that sensation, or establish what is called an image schema. Because the balance schema is associated with positive feelings, we develop a conceptual metaphor: balance is positive. The metaphor is conceptual because it builds our understanding of a correct and desirable state, shaping it from physical experience. It is also primary because it develops from infant experience and is fundamental to further conceptualisation (Grady, 1997). Our language develops the metaphor when we require opinions to stand up to scrutiny (Gibbs, 2005) or have good grounds. Equally, grammatical forms such as the transitive clause exploit imagery developed from infant experiences of physical forces (Goldberg, 1995). Grammars use spatial relationships to conceptualise those that exist between words. For example, the to infinitive (I want to go) uses the experience of going to a physical destination to conceptualise purpose (Lakoff & Johnson, 1999). Such
examples suggest that Cognitive Grammar is essentially a *space grammar* (Langacker, 1982) constructing grammatical relations from spatial imagery.

The semantic relationship of metonymy also arises from embodied experience. Metonymy is based upon physical and hence semantic contiguity as when *sail* stands for *ship* or the example of a category, *hoover*, stands for the category itself, *vacuum cleaner* (Lakoff, 1987; Radden & Kövecses, 1999). The relation emerges from grasping one thing through another, a cup through a handle, for example, or more basically the proprioception of our limbs as our body, a perception emerging into language in such expressions as *hands* for people in *deckhands*. Less basically, metonymy construes abstract meanings and enters the grammar. For example, we make the singular *Mozart* uncountable when we talk about *some nice Mozart* because we are using a producer (Mozart) for product (music) metonymy (Croft & Cruse, 2004).

A common anatomy and some shared environmental features ensure that different languages share basic meanings. However, some meanings differ because we use metaphor, metonymy, and other construal operations to build higher level categories, differentiating a universal such as *anger* from that of *annoyance*, for example (Kövecses, 2005). When a meaning is less basic and more abstract, then its conceptualisation may need greater cognitive effort, creating greater linguistic and cultural difference in how it is perceived (Lakoff, 1987; Lakoff & Johnson, 1999, pp. 27–31). An abstract entity such as time is existentially basic and always grasped through various spatial metaphors. Yet our organisation of temporal space and its landmarks will differ between cultures and languages (Kövecses, 2005). Because grammatical meaning is abstract and represents relations between phenomena in time and space, grammatical meanings may differ more between languages than lexical ones, something that linguistic relativists such as Whorf (1956) understood well.

**Language Learning and the Imagery of the Embodiment**

Broadly, embodied approaches to language teaching try to make language more memorable by showing how a meaning has been derived from physical experience. My suggestion, however, is that the new form will be made more memorable if it is thus reinvested in the movements, gestures, and physical imagery from which the meaning was conceptualised. A further possibility is to use such procedures to clarify meanings that do not exist in the students’ first language (L1) by relating them back to the physical images and activity from which
they derive. These objectives can be advanced actually and virtually. The actual embodied experience of meaning proposes enactment and movement (E&M) routines whereby students get to feel the force-dynamics from which meanings are conceptualised. The virtual experience uses diagrams and pictures to illustrate how meanings are motivated by that physical imagery. Teachers can also construct a “middle way,” reinforcing E&M routines with virtual, illustrative methods or vice versa.

Actual Embodied Routines

These routines can involve interactions with realia in ways already common throughout many classrooms. For example, English determiners construe phenomena as bounded forms in the countable *a paper* or as unbounded substance in the uncountable *paper*. An embodied approach would attach physical exemplars of the form to a student’s grasp of an entity as shape or as textured substance. Teachers can then demonstrate how metonymy extends the meaning and shifts the grammar, perhaps exchanging *the paper* for *a newspaper* and stressing its countable form. With younger learners particularly, teachers can relate a metaphor’s conceptualisation of abstract meanings back to the movements and gestures in which it originates, for example, *jumping for joy*, or conversely feeling *down* and dropping the head, or applying *pressure* to show meanings such as *depressed*. In a more direct mimetic procedure, Lindstromberg and Boers (2005) increased the retention of English’s extensive inventory of verbs of manner (trudge, saunter, etc.) when learners enacted them. Their focus on movement tackles an important area of conceptual differentiation between languages. This is between verb-framed languages, which contain the path of movement within the verb itself (e.g., the French *rentrer à pied*) and satellite-framed languages, which take the manner inside and put the path outside (e.g., the English *walked back*; Talmy, 2000a, 2000b). Teachers can also give language itself a greater physical presence in the class when they stress the iconic nature of some sounds or make mnemonic use of its alliterative patterns. This may help advanced students learn lexical phrases (Boers & Lindstromberg, 2005) or lexis with alliterative associations, as when *wings whir* or *flames flicker*.

CL thus revives interest in an iconic principle in language, whereby linguistic form is motivated by its development of similarity relationships to its meanings in such phenomena as onomatopoeia. Teachers can also exploit iconicity by using mind maps that show the proximity or remoteness of different category meanings. An unexplored tech-
nique involves looking at how linguistic forms give a phonological representation of conceptual distance. For example, students troubled by the difference between *stopped eating* and *stopped to eat* could think how the latter separates two actions with *to*. The separation reflects the actions’ sequential nature. In contrast, *stopped eating* iconically integrates *stopped* in the process it instigates (Taylor, 2002). This is something that can be acted out in class. Thus the student says, “I stopped eating,” and stops. For *stopped to eat* the teacher chalks down an action space and an intention space. Standing in the action space, the student stops another action such as walking, points to the spatially separate intention space and says, “To.” The student then moves to the intention space, says, “Eat,” and begins the action.

Teachers can ask constantly if learning is not more effectively reconstituted as physical activity. Moving to learn is implicit to many divergent educational cultures. For example, Islamic school rooms associate rote learning with rhythm and movement; Jacques-Dalcroze (1919/1988) developed children’s musical understanding through their expression of music as dance and mime. Even advanced English as a second language students with tonal L1s can try learning stress timing in language and the poetic meter on which it is based by tapping out word stresses.

A researched approach to the re-embodiment of meaning in physical activity is Asher’s (1969) Total Physical Response (TPR) method. TPR experimentation showed that students who responded to commands with actions achieved significantly higher scores on comprehension tests (Asher, 1969). Asher’s method was later connected to Krashen’s (1985) assumption that second language acquisition (SLA) needs a silent period for students to process language mentally without speaking. Quite differently, the Embodied Learning Principle ascribes the success of TPR to helping learners experience meaning as physical activity. For example, the teacher wants to teach a new form, “w-al-k.” Whether or not the teacher gives a translation, the learners normally map the word onto their L1 equivalent. TPR, however, reinvests the word in the physical activity from which its meaning was conceptualised and may therefore make it more memorable. From TPR, the embodied principle can be developed towards a spectrum of similar well-tried methods. Learners and teachers can instruct each other in tasks with movement outcomes, coach each other in sport and dance, build models, cook, or perform scientific experiments. Also available are repertoires of mime techniques and charades-like routines, in which, for example, learners produce text in response to peer or teacher mime or mime pictorial or textual content (e.g., Davis & Rinvolutru, 1995; Dixey & Rinvolutru, 1978; Maley & Duff, 1978). It remains, however, that the effectiveness of such techniques is often
either unquantified or researched only from the perspective of student attitudes (e.g., Brice Heath, 1993; Di Pietro, 1987).

Language students tackling new writing systems feel that grapheme reproduction helps grapheme recognition. Learning to read Chinese characters has been found to be facilitated by learning to write them (Guan, Cao, Chan, Perfetti, & Wu, 2009). Students brought up in literacy-based education systems often need to write words, partly to preserve them for future study, but often also to learn them through writing them out, or through using physical action to give them a visual form. There is an intriguing embodied perspective on this. Writing by hand supposes a use of the body to form signs. In this sense, writing is frozen gesture, or an act of recording the symbolisation of meaning in movement (Holme, 2009). But it is one thing to suggest that tracing out a sign helps learners acquire the conventions of that sign and quite another to propose that it also helps them learn the collective meanings that the sign encodes. There is a need for more research into whether writing itself promotes memorisation and whether handwriting does this more effectively than keyboard use.

The Virtual Embodied Principle

This principle suggests that graphics or explanations can make meanings clearer by showing how they derive from physical interactions with forces and objects. Tyler (2008) demonstrates how graphics can illustrate the embodied experience of forces implicit in English modality. Thus the agent of the modal, will, is illustrated by a stick figure with an arrow projecting from it to show it as the origin of a force. For would, the same graphic uses dotted lines to show weakened commitment. For must, another figure and arrow are added to show an external force applied to the agent. Controlling modality is central to studying law. Tyler cites research that shows how law students who have been taught with these methods control modality better when writing law papers (Abbuhl, 2005; Hama, 2005).

Niemeier and Reif (2008) and Holme (2009) discuss how students of English aspect may be helped by imagery derived from the conceptualisation of time as bounded or unbounded. For example, a PowerPoint picture strip helps learners find verbs to represent a story’s focal actions. Each picture frame shows the actions as bounded events in a sequence. To switch to the continuous, the teacher can click on one picture and trigger an animation in which the picture expands into the whole slide, covering all others. This picture now supports an unbounded, progressive function. For Niemeier and Reif, animating the picture shows how continuous aspect expresses the homogeneous
nature of the event and not its position in a narrative sequence. However, the success of such techniques awaits more rigorous empirical study.

Practitioners have also used CL’s interest in spatial imagery to help learners explore English prepositional or particle meanings. Thus CL analyses the use of prepositions in English as often motivated by spatial representation (Boers, 1996; Lindner, 1981; Tyler & Evans, 2003) as in the expression of logical relations with “we can deduce ‘a’ from ‘b’” (Lakoff & Johnson, 1999). Additional work has applied such insights into teaching (e.g., Coventry & Guijarro-Fuentes, 2008; De Knop & Dirven, 2008; Littlemore, 2009; Littlemore & Low, 2006a; Rudzka-Ostyn, 2003; Ruiz de Mendoza Ibáñez, 2008). For example, Ruiz de Mendoza Ibáñez (2008) extends what Lakoff and Johnson (1999) call the invariance principle to help learners understand abstract metaphorical prepositional constructions by looking at their concrete counterparts. Researchers have used spatial imagery to make English phrasal verbs appear more principled and transparent. Thus students can be shown how a group of verbs uses up and the conceptual metaphor that what is unknown and unconscious is treated as buried until brought up, looked up, or thought up. Condon’s (2008) systematic study of this approach reports a mixed result. One experimental group showed significantly improved usage over a control group, but another no significant difference. Kövecses and Szabó (1996) and Boers (2000a) reported more consistent results with a similar procedure. Such procedures also find support in work that shows how exploring the metaphorical origins of expressions helps learners understand, use, and remember them (e.g., Boers, 2000b, 2001; Boers & Demecheleer, 1998; Dirven, 1985; MacLennan, 1994). More recent research shows how graphics that illustrate the literal origins of such metaphorical expressions as pitfall can improve retention if some account is taken of learning styles (Boers, Lindstromberg, Littlemore, Stengers, & Eyckmans, 2008).

THE PRINCIPLE OF A LEXICO-GRAMMATICAL CONTINUUM

We could use the fixed expression in Example 1 to make a statement about human behaviour with words whose individual meanings refer to birds. In this expression the words lose their conventional types of reference. Traditional grammars called such expressions constructions or idioms. According to this traditional analysis, Example 2 would be an opposite case because both words retain their conventional referents whilst being given grammatical functions by their clause structure.
Example 1: Birds of a feather flock together.
Example 2: Birds fly.

There are restrictions on the words available to a clause with Example 2’s meaning, however. Even the assumption that the verb must have an intransitive meaning could get us into trouble. In Example 3, *flock* is an intransitive verb, which according to the British National Corpus cannot be used with this type of construction.

Example 3: Birds flock.* (*ungrammatical sentence)
Example 4: The public have been flocking into the cinemas to see *Avatar.*

*Flock* needs a complement expressing the goal of motion as in Example 4. In CL’s construction grammar we could say that this word frames two meanings that need representation, a dispersed agent, and a goal where that agent gathers. The specific but still schematic nature of the frames exemplifies how lexical meanings shape grammatical selections, denying an autonomous role to syntax.

CL’s approach to this problem is first to treat Examples 1, 2, and 4 as different variations of the same principle. These forms are all constructions in which the fact of words being used in combination changes their meaning. In Example 1 the change in the words’ meaning is quite radical. *Birds* might refer to something not avian at all, perhaps to people with similar interests. Example 2 (*birds fly*) is much more productive. We could specify this as Subject + Verb (intrans). Here, by combining these words we are saying that the noun’s meaning changes to that of an agent in an action and the verb unfolds that action. CL calls such meanings *schematic* and the construction is *compositional.* A schematic meaning is like a semantic outline that needs filling or instantiation. A schematic meaning such as the semantic role *agent* can potentially encompass any phenomenon that can be construed as instigating an action. Such vague meanings pertain more to the relationships between phenomena than to phenomena themselves. They thus require instantiation by more concrete lexical meanings. A construction is compositional because its meaning can compose relations between different lexical meanings, but it has meaning nonetheless.

CL places lexis and grammar on a continuum that runs from this substantive and noncompositional meaning to the compositional. Figure 1 illustrates this with a diagram based upon Croft (2001).

The noncompositional pole may be an idealisation when in language all elements are finally composed of other elements that have and retain variable semantic significance (Taylor, 2002).
Teaching Along the Lexico-Grammatical Continuum

Corpus linguistics introduced into English language teaching practice the notion of a lexicalised grammar that is illustrated by Examples 1 and 4. Sinclair (1991) expressed the lexico-grammatical continuum as a choice between idiomatic and open principles, seeing normal discourse as idiomatically patterned to a degree that made idiom a first choice in processing. This led to the recognition that much discourse consists of idioms and lexical phrases, making these patterns essential to language learning (Lewis, 1993, 2000; Nattinger & DeCarrico, 1992). Yet it is arguable that lexical approaches overstress the substantive nature of language content and understress the compositional nature of even heavily lexicalised forms. Learners following lexically focused syllabi may lack the compositional means to fully integrate learnt phrasal islands into discourse. The intuition here is that the more subtle representation of the continuum shown may help teachers explore the grammar-lexis interface more effectively, treating focus on form less as an opportunity to oscillate between idiomatic and open choices and more as an occasion to grasp the interrelatedness of lexical and grammatical meaning. In this, CL’s notion of schematicity and its associated stress upon the symbolism of both grammar and lexis can use the notion of the continuum itself to show how a lexicalised form can be the exemplar of a more productive meaning. Thus the idiom kick the
bucket is first an opaque form whose words cannot be substituted without a complete change of meaning but second an exemplar of the very productive transitive construction. Further, even the idiom can be compositional in the sense of using tense to fit a context.

Teaching Along the Lexico-Grammatical Continuum: The Lexical Pole

At the lexical end of the continuum, CL’s interest in polysemy, categories, and frames gives an insight into how lexical meanings such as that of flock in Example 1 can both constrain and develop the productivity of the constructions of which they are part. Thus one can explore how metaphor develops flock’s sense of people gathering about an agreed goal from the larger observation of some animals. Though of restricted usefulness, the verb builds one of the thousands of constructions whose idiomaticity differentiates native and second language speaker discourse. Teachers tackling this idiom deficit can find support from CL’s large body of research into how students can organise idioms according to the conceptual metaphors from which they derive (e.g., Cameron & Low, 1999; Danesi, 1986; Dirven, 1985; Holme, 2004; Lindstromberg, 1991; Littlemore, 2001, 2003; Littlemore & Low, 2006b; Low, 1988; Richardt, 2005). Exploring the metaphorical origins of an expression also helps students understand how it is and is not productive. Thus a metaphor-based analysis of the error cited in Example 5 can help students find constructions that fit lexical choices:

Example 5: Strategies relate specifically to areas that they make more interference errors on (author’s data).

The learner needs to construe area with a container metaphor. Next the learner needs a relative clause construction to represent it as the place in which errors may occur. This would avoid the convoluted syntax and stranded preposition.

Teaching Along the Lexico-Grammatical Continuum: The Grammatical Pole

CL’s insights may also help refocus the lexical interest in collocation away from the teaching of collocates per se and towards the form they identify. Straightforwardly, teaching a construction such as I am ready to leave rather than a collocation, ready to, means giving learners a prototype from which other similar examples could be produced. From these exemplars more schematic and hence more productive
meanings may be established as the teacher moves the class towards the grammatical pole and perhaps looks at other purposive predicative adjective constructions (anxious to go, eager to please, etc.).

I should note, nonetheless, that chunking, or treating potentially productive forms as substantive lexical elements, is a normal stage in construction learning. Tomasello (2003) notes what he calls *construc-tional islands*, putting forward an exemplar-based view of acquisition in which first language learners acquire a specific lexical realisation of a form. Generalisation is a consequence of an innate human or animal ability to recognise patterns and use these as a basis for categorisation (Tomasello, 2003). There is no issue about whether these abilities survive the acquisition of a first language, because they are part of the larger ongoing ability to categorise reality. Thus even if the aim is a productive form, the first objective is to make sure that students acquire a prototype of the compositional construction to which they are introduced. Manzaneres and Rojo Lópes (2008) demonstrate that learners of English with Spanish as their L1 using the ditransitive or double object construction (Example 6) prefer a particular lexical model and bed this down before generalising it.

Example 6: I gave/owed/made them some money.

Goldberg and Casenhisser (2008) discuss how learners find generalisation unproblematic after acquiring a construction’s prototypical form. They also stress that learners need strong exemplars to use as prototypes. Another point for future research in the language classroom is how in clausal constructions some verbs provide learners with clearer guidance than others to the construction’s meaning (Goldberg, 1995). Thus, Goldberg (1995) analyses the core meaning of the ditransitive example shown in Example 6 as transferring possession. Give clearly typifies this meaning. Owe extends the meaning away from this with a use of metonymy (giving is the prerequisite of owing), whereas make has this meaning entirely imposed upon it by the construction itself. Give should therefore be in the learner model.

However, it is important to remember that correct generalisation does not necessarily follow from successful prototype learning. First, as Ellis (2005) notes, one must process the different *tokens*, or differently lexicalised examples of a form, before one can grasp it as schematic or patterned. Second, research suggests that second language (L2) users continue to avoid compositional forms (e.g., Ullman, 2005). Third, successful generalisation does not preclude overgeneralisation and hence error. Having introduced a compositional construction, teachers therefore need to think about helping learners encounter it in different forms in subsequent activities, and to notice it when they do. This can mean highlighting its occurrence in text and asking learners to
relate it back to a previously encountered form. It could also be part of a rich correction strategy whereby teachers not only prompt learners to give a correct form but also explore how it generalises.

Holme (2010) reports on two interventions in which Hong Kong sixth formers were taught to identify constructions useful for writing up their English project. They explored the constructions’ meanings, experimented with their generalisation, and sometimes proposed appropriate contexts for the generalisations produced. For example, the students encountered Example 7 in text.

Example 7: . . . they finally got them to do it in the right way.

Students understood the expression, but a cloze test had previously found they could not use this *get-somebody-to-do-something* construction accurately. The teacher therefore trained the learners to look for forms of the expression that showed how it could be generalised. To show the construction as a relational pattern that could use different lexis within schematic limitations, the learners rewrote it with proforms. This schematic version of the form was then put into the top of a substitution table such as that shown in Table 1, and the students were asked to produce generalisations in groups. Words in italics are the fixed terms around which other lexis was inserted.

Groups then challenged each other to use their generalisations in contexts. The experimental class showed an improved uptake of the forms over a control class that simply encountered these forms in their materials. This was unsurprising because of *time on task*. More interestingly, the students were asked to reproduce two of their project’s text types at the beginning and end of the intervention. One text type was the analysis of an advertisement and the other a (local) news report. To make the assessment as objective as possible, all grammatical and lexical errors in their writing were assessed equally. Students made significantly fewer errors after the intervention.

### THE CONCEPTUALISATION PRINCIPLE

The conceptualisation principle overlaps all others, and the discussion of it in the section on embodiment in particular curtails the treatment here. In CL, all meanings are products of conceptualisation.

#### Table 1

<table>
<thead>
<tr>
<th>Generalising Constructions with Substitution Tables</th>
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<tbody>
<tr>
<td>Somebody got someone to do something</td>
</tr>
<tr>
<td>I persuaded Kerry take her out</td>
</tr>
<tr>
<td>We asked the teacher slow down</td>
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</tbody>
</table>
A given grammatical or lexical category does not refer straightforwardly to an entity in the world but is part of a network of related meanings and the knowledge we have built about them. Our ability to use these meanings assumes encyclopedic knowledge of a meaning’s texture, shape, function, and differentiation as well as of the semantic frames that a verb requires (for buy: purchaser, goods, seller). Finally, these meanings may also contain a variable knowledge of the imagery from which they have evolved and through which they may be connected to each other. This imagery can contain high cultural specificity that adds to the learning burden. For example, using stone needs an encyclopedic understanding of where it may be encountered and when it refers to a form and when a substance. Meanings further vary between British and American English. As substance or texture it is also associated with lifelessness. Similarity-based metaphor gives us stone-dead/cold. Metaphor and metonymy then create another adjectival extension. Stoned was associated with the stupefaction induced by drugs but has developed towards a general description of drug- or alcohol-induced states.

Construction meanings are also categories, as Example 6 shows. With some constructions it may help students to study the meanings as different but related parts of one category. For example, I’ve been here a long time and I’ve been here before use the same present perfect construction to construe an action in different but related ways. Theoretically at least, helping learners recognise the difference and relationship between the meanings can start their building of that larger aspectual category. The notion of frame can also help learners explore how verb meanings shape clausal constructions. For example, in I’ve sold him my car learners can brainstorm for different instantiations of “seller (I), goods (my car) and purchaser (him)” (Holme, 2009, p. 115). CL also gives insights into how the constructions of one language may construe a topic quite differently from those of another. This adds a dimension to language learning that has been called conceptual fluency (Danesi, 2008). Conceptual fluency helps us rework the longstanding topic of error analysis. Though far from catastrophic, the error in Example 8 expresses this conceptual problem.

Example 8: The knowledge in villages in China is very low.*
(*ungrammatical sentence; Holme, 2009, p. 86)
Example 9: The level of knowledge in villages in China is very low.
Example 10: Knowledge in villages in China is not great.

A comparison of Chinese and English shows how words for knowledge represent different categories in both languages, with the Chinese also containing the idea of education. CL further reminds how knowledge in English is not itself conceptualised as a bounded level that is low or high but as a substance that is great or small. Thus English
exploits a metaphor of knowledge as a contained substance with such expressions as a high/low level of knowledge. Without level of the determiner in Example 8 is overgeneralised. Unbounded knowledge refers to all knowledge and so would be undetermined, making Example 10 a possible correction. In effect, it can be hard to make Corder’s (1981) long-standing categorisation of errors as either intra- or interlingual. The error is interlingual in the sense that the L1 has no determiners and provides no definite article meaning, but intralingual because the lack of such knowledge means there is no interference. The conceptualisation principle urges a closer look at such effects in learner language and at the larger problem of teaching new meanings. Yet developing CL frameworks for learner errors must overcome the problem of distinguishing conceptually and semantically motivated errors. Further, the hope that CL’s insights can help learners re-engineer their conceptual systems should be moderated by Negueruela and Lantolf’s (2004) research into conceptualisation as expressed by gesture, and the conclusion that even bilingual people do not always build new conceptual systems in the L2.

THE USAGE PRINCIPLE

The usage principle confirms the social orientation of CL’s approach to language and thus to language learning. Usage is first bound up with frequency effects whereby repeated encounters with a form promote its acquisition (Bybee, 2008; Ellis, 2002, 2005; Larsen-Freeman & Cameron, 2008), provided other factors such as its saliency and the ease or difficulty of perceiving its meaning are taken into account (Tomasello, 2003). Imagine that a learner’s first encounter with the regular English past tense is through talked. When the learner reproduces the verb correctly, the mentally stored type and the used token will match provided some allowance is made for allophonic variation. But when the learner generalises this type to another token, perhaps walked, there is a type-token mismatch. This generalisation requires development of a more abstract verb + ed schema.

Infants first chunk a few irregular and regular verb forms and so produce correct representations of the past tense (Cazden, 1968). CL attributes this to a frequency effect whereby forms that dominate the input also dominate uptake (Bybee, 2008; Ellis, 2002). Irregular verbs are picked up as chunks when their usage is frequent and meaning salient. For example, a type, went, matches the token went. Equally, Pine and Lieven (1997) note how there is little evidence for abstract grammar in the speech of infants, but more a process of chunks opening slots that are filled with an appropriate
meaning, for example, *I wanna _____*. Subsequently, as the learner is exposed to a larger repertoire of verbs, there is another frequency effect whereby the regular *-ed* form becomes dominant in uptake so that learners even regularise irregular forms as *verb + ed* (Cazden, 1968). A third phase sees schema competition (MacWhinney, 2005, 2008) as the type, *verb + ed*, or *goed* competes with *went*, resulting in an oscillation between the correct irregular and incorrect regular form. In the last step, learners sort out forms into regular and irregular categories (Cazden, 1968). This can be attributed to further frequency effects as the different regular and irregular forms become more prominent in the input.

MacWhinney’s (2005, 2008) Unified Model treats L1 and L2 learning as similar and as exploiting the same cognitive strategies. L1 and L2 learning are different only in that L2 learners are older and have a developed category system already in place. Extant category knowledge makes L2 acquisition faster in the first instance but also sets up the later problem of semantic interference and conceptual fluency. According to the unified model, the problems of mature language learners can be better associated with such interferences and a decline in receptivity to new forms than with Lenneberg’s (1967) critical period. The automatisation of the knowledge needed for language and its associated motor skills presupposes that knowledge’s protection from interference by other forms. The usage principle therefore treats L2 learning as something of a *forcing* process, in which one tries to overcome the natural resistance of old knowledge to new.

An already developed category knowledge gives L2 learners greater control over their learning through the conscious exploitation of the strategies that learning requires (O’Malley & Chamot, 1990). Teachers can make a more subtle contribution to this process by *input engineering*. This proposes that a key feature of instruction is ensuring that learners are re-exposed to lexis and constructions and that, in the case of the latter, learners *notice* the forms in which they reoccur (Schmidt, 1990). However, there are still uncertainties about how far the acquisition of a construction is advanced by learners’ consciousness of its meaning and reoccurrence. What cannot be doubted is that explicit instruction in form is effective provided it is concurrent with exposure to a sufficient number of exemplars and the provision of contexts in which to reuse them (Carroll, Roberge, & Swain, 1992; Carroll & Swain, 1993; Eckman, Bell, & Nelson, 1988; Ellis, 2002; Gass, 1982; Tomasello & Herron, 1988). A usage principle might show how explicit instruction shortcuts frequency effects by furnishing learners with a sense of type without their having to build this from repeated exposure to different tokens. For example, explaining the meaning of the
definite article construction helps establish it as a productive meaning without learners having to glean this meaning from multiple contexts. Yet these points are currently speculative. More generally also, CL’s treatment of meaning as conceptualised from embodied experience may also afford some insight into how our use of language is bound up with our emotional lives but does not yet give teachers a strong idea of how to exploit this.

**CONCLUSIONS: A PEDAGOGICAL MODEL**

Figure 2 shows the consolidation of the four tenets just outlined as facets of a larger approach. The figure should capture teaching and learning as dynamic processes (Ellis, 2005; Larsen-Freeman & Cameron, 2008) within which each principle impacts the others.

CL insists that meanings are motivated by the imagery derived from the body as a *third term*. A consequent theory of *embodied learning* has actual and virtual impacts. In the actual case, many E&M techniques are implemented because of a *felt* perception about their encouragement of TL usage, though some have been shown to have clear benefits, particularly when tied to specific meanings. Generally, though, we justify the adoption of these techniques with a sounder theory but less certainty about actual results. One must also consider age, culture, and learner predisposition. E&M can achieve little if learners cannot be convinced that they should be moving and acting in class. Virtual techniques offer evidence for having improved the quality of the
learning experience, but there is less general certainty about whether they result in a markedly better uptake of communicatively effective language.

The conceptualisation principle emerges from embodied theory because we conceptualise meaning through our embodied nature. The principle proposes that learners reinvest new pairings of form and meaning in the imagery out of which those meanings were conceptualised. It helps learners explore category meanings and advocates understanding how metaphor and metonymy enable their extension. Some of the work on the classroom applications of metaphor theory has had considerable success. There is also some promise for our analysis of error, but as yet no certain knowledge about how to distinguish its semantic and conceptual origins or how to use these insights to adjust a learner’s conceptual systems to fit new languages.

The principle of the lexico-grammatical continuum emphasises the large number of forms that successful L2 use requires and so points up a longer standing realisation that students need a stronger grasp of lexical patterning in language. The principle invokes that of conceptualisation to help explore the schematicity and productivity of constructions. Embodied techniques can furnish the rhythms, repetition, and imagery that support lexis and construction learning. More research is needed into the real length of the grammar syllabus when lexicalised. Advanced learners need to focus on raising their level of idiomaticity. CL’s continuum can help them do this by grasping constructions less as fixed phrases and more as tokens of types that, though productive, are more lexically constrained than those that typify a core grammatical syllabus. Some research evidence indicates that asking students to try generalising some lexically substantiated forms will improve accuracy. Teachers must also give students strong repeated prototypes of constructions from which to generalise (Goldberg & Casenhiser, 2008). Less certain is how an approach that is focused on both substantive and schematic meaning will benefit the advanced learner’s communicative ability.

A construction’s form and category meanings can only be fully grasped when differently unfolded by different texts, thus proposing the usage principle. Usage in the classroom finally means what it says and is arguably implicit in some task-based learning approaches (Robinson & Ellis, 2008) with lexico-grammatical density, and hence the frequency of new constructions being raised by task complexity (Robinson, 2001). Perhaps, though, the principle calls for more teacher control over input and output, or for what I call input engineering, to make sure that forms reoccur and are noticed when they do. It also implies basic good practice in the maximisation of target language contact outside the classroom and so building greater learner
autonomy. We can also see a frequency effect in explicit grammar teaching itself. Examining a form-meaning pairing and exploring how it generalises to new contexts reinforces usage. This may be part of the explanation for why grammar teaching works. Here, the conceptualisation principle also helps learners obtain a better sense of the constraints on construction generalisation with its exploration of the imagery that builds schematic meanings.

In general, the research gaps into how well these principles apply in the classroom are considerable. Further, there is as yet no larger sense of what they might achieve if unfolded over time and in combination. Yet the basis of an approach to teaching that is friendlier to the cognitive nature of language is now starting to emerge.

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