# Logic of the Future: Teaching Futurity to Adults With a Dominant Logical-Mathematical Intelligence

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**Abstract**

Drawing from the author's experience of teaching English to software developers working for international companies in Moscow, Russia, the paper examines several strategies of teaching the future and their implications for Russian students with a dominant logical-mathematical intelligence.

Taking into account typical problems faced by students with highly developed logical-mathematical intelligence when studying some more ambiguous aspects of expressing the future, the paper contributes to a discussion of relevant and efficient ways of presenting English grammar to Russian learners, suggesting using the concept of purpose to explicitly clarify and facilitate analytical comprehension of futurity by the students.

**Key words:** second language acquisition, learning styles, focus on form in ELT, inductive and deductive teaching, future time, multiple intelligence theory.

Howard Gardner's multiple intelligences theory can be viewed as "an excellent tool to enable teachers to plan attractive ways to provide learners with language learning practice" (Arnold, Fonseca, 2004, p. 125). Gardner argues for the existence of at least eight 'intelligences' of equal status, including linguistic, logical-mathematical, musical, spatial, bodily-kinaesthetic, naturalistic, interpersonal, and intrapersonal (Sternberg, Kaufman, 2011, p. 50). No empirical research supports a strong correlation between intelligence types and results of second language acquisition (Arnold, Fonseca, 2004, p. 124; Razmjoo, 2008, p. 155), and there is strong evidence to suggest that the idea of catering for visual, musical etc. 'learning styles' is highly overrated (Willingham, 2005).

Nevertheless, taking the concept of multiple intelligences into account can result in raising both students' and teachers' awareness of challenges posed by fundamental differences in intelligence types for learning a foreign language. This paper aims at reflecting upon some of these dilemmas, drawing most samples from my experience of teaching futurity to adult students working in IT research and development.

**Grammar as an algorithm or a pool of information**

For my students working in IT, the most obvious challenge is bridging their positive experience of working with algorithms and their not neces-

sarily positive experience of dealing with their first and second language in educational settings. In Gardner's terms, there is a certain gap between logical-mathematical and linguistic intelligence here. It would be rational to suggest that learning grammar might be an excellent opportunity to use logical thinking when approaching the language.

As one of my strong intermediate students put it, "grammar is a set of rules which describes [sic] how to construct sentences in a language". The coursebook this student uses partly supports the view: "Organised and logical people find it easy to learn grammar rules" (Cotton, Falvey, Kent, 2012, p. 38).

If we think about English grammar 'rules', however, the latter statement is seriously exaggerated. Students with dominant logical-mathematical thinking often complain about English grammar being 'chaotic', something that has to be remembered rather than understood. This is certainly a challenge when addressing the future. As Thornbury (2006) puts it, "the future is inherently vague and indefinite: it is not easy to formulate clear-cut rules" (p. 89).

These concerns correlate with Langacker's (1986) view of internalised grammar as "a structured inventory of conventional linguistic units" (p. 16). Michael Swan's *Practical English Usage* (2005), an alphabetised reference where key grammar points are represented as a number of interrelated but fragmented issues, may serve as an example of a practical implementation of Langacker's principle. In contrast to this, various attempts at establishing a logical approach to understanding and teaching English grammar made by non-native speakers of English (Declerck, 2006, Kravchenko, 2012, Svalberg, 1986) may serve as an example of looking for more 'algorithmic' perspective.

In my experience, in order to promote a relevant student-centred approach one has to balance the two perspectives outlined above. In case of students with dominant logical-mathematical intelligence, the main challenge is to find logical pattern(s) relevant to the language material studied and logically plausible for the students' sharp and inquisitive minds as well.

**Focusing on learning styles or the subject matter modality**

My native- and non-native-speaker colleagues have shared with me their concerns regarding our students' 'obsession' with various potentially confusing 'why' and 'what if' when it comes to focusing on form(s). The students seek logical connections, such as that of cause and effect, and find non-algorithmic approaches to teaching grammar frustrating. This can lead to poor teacher-student rapport and sense of mutual dissatisfaction.

It is clear, however, that the principle of cause and effect is hardly applicable to teaching futurity. Indeed, structures expressing the future pose a challenge to those seeking to provide students with a clear template of English verb 'tenses' (compare Salkie 2010, Bergs 2010). A quick glance

at page 30 of *Grammar and Vocabulary for First Certificate* (Prodromou, 2005), where seven different structures are matched with nineteen concepts (meanings, uses) and twenty-two sample sentences (two of them contrasted with incorrect samples), allows to appreciate the diversity of 'linguistic units' students have to face even at level B2 of Common European Framework.

My solution, based on the way the future is represented in conventional EFL grammars, is as follows: I encourage my students to refer to a particular speaker's purpose when choosing a relevant way to express futurity. Before saying (or writing) something, a language user has to determine if they are about to offer something, refer to a fixed arrangement or a timetabled event etc. When logically analysing our use of futurity, we must ask ourselves 'What for?' to specify the meaning of our 'why'. Logicians would speak here of *causa finalis,* reason as purpose.

When teaching the future, I often ask my students to formulate an appropriate response to an unwanted invitation to a party. They normally come up with three types of structures:

(1) *Sorry, I can't come: I'll help my granny with her gardening.
(2) Sorry, I can't come: I'm going to help my granny with her gardening.
(3) Sorry, I can't come: I'm helping my granny with her gardening.

Realisation that (3) is probably the best excuse (it's all pre-arranged and the speaker is not in the position to change the situation) and (1) sounds unnatural and/or impolite shifts my students' perspective on futurity, making them more informed and reflective decision-makers when using their English. Here a function-focused way of teaching the future makes room for catering for basic requirements of logical-mathematical intelligence without losing touch with the language as used in real-life contexts.

Keeping one's purpose in mind resolves the dilemma of focusing "on the content's best modality — not the student's" (Willingham, 2005) following a win-win scenario. On the one hand, the functional approach is a relevant tool of distinguishing between various concepts and structures in the language. On the other hand, it provides a clear, user-friendly algorithm allowing each speaker to embrace the responsibility for their language choices. Being aware of the purpose of one's utterance transforms a variety of structures and meanings to be memorised, which can be seen as a burden, into a variety of choices to be made, which is an excellent opportunity.

**Deductive or inductive teaching**

So far in this paper I've been using a deductive approach: starting with Gardner's multiple intelligence framework, I've demonstrated a general controversy between algorithmic and non-algorithmic approaches to language (teaching) and provided examples from and my colleagues' and my own experience to suggest bridging the two approaches when teaching futurity.

Introducing a more inductive thinking strategy, traditionally favoured by English intellectuals (Craig, 2011, pp. 93–94), is problematic here. The main challenge is the fact that ELT authors mentioning induction do not necessarily see it as 'inference from particular to the general', stating that in a 'purely' inductive approach "the rule is left implicit" (Gollin, 1998, p. 88) and therefore no generalisation is actually made. For students coming to the classroom for clarification and guidance this implicit, analogous approach is the cornerstone of frustration. These students need a toolkit and are willing to obtain it, no matter how determined their teachers are to make focus on form part of "exposure to comprehensible input arising from natural interaction" (Sheen, 2002, p. 303).

Whichever way a teacher comes to clarifying futurity: from 'marker sentences' (e.g., see (2) and (3) above) to concepts (e.g., a promise, an offer, a plan) or vice versa, from key concepts to corresponding language structures, explicit clarification and generalisation are part of the process. Students with dominant logical-mathematical intelligence encourage this teaching style and do not tend to see grammar rules as imposed statutory requirements or absolute laws unless their teacher promotes the latter view. Rather, they approach the rules, to use my pre-intermediate students' expression, as 'a set of formulas' to be used with some flexibility in different contexts.

In case of futurity, these formulas operate functionally and are highly context-sensitive. This means that when formulating an idea about the future, language users have to be aware of their own communicative purpose and informed about the variety of structures at their disposal to express this purpose in the clearest possible way. For students with strong logical-mathematical intelligence, a reasonable use of explicit deductive teaching is the key to boosting learner awareness and autonomy. In the end, it allows them to be able to deduce the most appropriate structure on their own, after having left their classroom.

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## Integration of Communicationand Reflection in EAP: Benefits and Challenges

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**Abstract**

The paper argues that communicative and reflective skills as expected learning outcomes of learning at the university though believed seemingly opposite can complement each other being developed concurrently and ultimately benefit students' EAP proficiency.

The methodology is based on the theory of step-by-step development of mental actions, the Multiple Intelligence Theory, learning-oriented approach, cooperative learning.

Communication is considered the bases for the relations of participants in education and a fundamental ability to take necessary knowledge and skills from all resources available [5].