

Formative Assessment: A Cognitive Perspective

Christos Theodoropoulos

Teachers College, Columbia University

The roles of *attention* and *awareness* in second language (L2) learning have been examined extensively in a number of SLA studies. One of the findings and claims made repeatedly is that *attention* as *awareness* at the level of *noticing* is a necessary condition for comprehensible input to be detected, selected, processed, and potentially and partially integrated within a learner's internalized grammar – that is, to become *intake* (Gass, 1988, 2003; Leow, 1995, 1997, 2000, 2001, 2003; Robinson, 1995, 2003; Rosa & O'Neill, 1999; Schmidt, 1995, 2001; Swain, 1985, VanPatten, 1996). The purpose of this discussion is to briefly illustrate how findings from these studies and, specifically, concepts such as *attention*, *noticing*, and *intake* can help researchers and practitioners reconceptualize the processes involved in formative assessment at the planning and implementation stages.

As a starting point for this discussion, L2 learning, from a cognitive processing perspective, can be defined as the process in which detected information receives focal attention, enters short-term working memory, undergoes *rehearsals* (i.e., data-driven and schema-based processing, corresponding to implicit and explicit learning processes, respectively), and finally gets encoded in long-term memory (Robinson, 1995, 2003). Intake, within this framework, is speculated to be the information that has already been rehearsed (i.e., either unanalyzed and maintained as instances of input or analyzed by schema activation in long term memory). In this cognitive approach, awareness, according to Robinson (1995), is ignited by these rehearsal processes, and noticing and understanding are considered their result.

Since certain cognitive activities such as noticing and understanding have been shown to be essential in the initial stages of learning, teachers need to be cognizant of the fact that one of the purposes of a formative assessment cycle is to provide students opportunities to notice target structures in various contexts in order to activate both implicit and explicit learning processes, and that evidence of these processes need to be gathered and shared by both the teachers and students. Equally important in the planning of an assessment activity is the selection of the task, which may exert attentional demands on students and may be a determinant of what is noticed and selected through focal attention. In fact, some believe that task complexity may constrain attentional resources (Skehan, 1998; VanPatten, 1996) while others argue that the varying cognitive demands made by different components of a task may help the reallocation of attentional resources and, in contrast, help students' chances of detecting carefully positioned target structures in the input (Robinson, 2003). Moreover, the targeted structures need to be made available within a communicative context and made perceptually salient, without the input-text necessarily being simplified (Leow, 1993) or enhanced (Leow, 2000, 2001, 2003). In terms of processing capacity, teachers need to be mindful that the availability of students' attentional resources may depend to a large extent on Universal Grammar parameters and may be influenced by the learners' first language (Gass, 1988; VanPatten, 1996) and their interlanguage (Han, 2009). Consequently, this may limit what the student is able to learn at any given point of language development and how effective the assessment task will be in promoting noticing. In short, the students should be prepared linguistically as well as cognitively for the assessment

activity in order for teachers to be able to document their students' learning attempts and to support students' learning efforts.

Furthermore, a cognitive approach to L2 learning may inform the nature and quality of the assessment strategies in the implementation stage of classroom-based assessment designed for formative purposes. Regarding diagnostic assessment, Alderson (2005) writes that feedback after or during the assessment cycle should be "maximally informative," relevant, meaningful, and useful. And in support of this, claims have been made that formative assessment and feedback overlap strongly (Black & Wiliam, 1998), since feedback may encourage students to "reflect" on their learning (Rea-Dickins, 2001). However, most of the formative assessment literature is a bit vague on what this reflection, for example, means or entails. In the context of attention and noticing, the informative and useful quality of feedback is contingent on the extent to which this strategy facilitates *intake* and, in specific, helps students consciously notice relevant language information. The feedback should target not only the ability of students to notice and understand the target language structure(s) and associated meanings but also, and more importantly, the students' ability and attempts to access and utilize implicit and explicit learning processes. This, in turn, may provide students opportunities to manage their own learning by ensuring that the linguistic information is *rehearsed*, in Robinson's (1995, 2003) sense of the term, and that the students are forming, modifying, rejecting, or confirming hypotheses about specific linguistic features as they relate to their internalized grammatical system (Gass, 1988). Feedback, in this sense, can facilitate *intake* in that students may be provided with evidence of what is grammatical and ungrammatical in the L2 (Long, 1996). Examples of such feedback might be a formulation of a rule, a request to compare different forms of a linguistic item and their related functions/meanings, a suggestion to search for the underlying rules, and/or a confirmation.

Finally, opportunities for students to employ the cognitive learning processes outlined above may already be pervasive in classroom-based assessment practices through the interactional nature of teacher feedback and scaffolding strategies, but might not be identified as such. As Rea-Dickins (2006) argues, classroom assessment activities cannot often be planned in advance but are occasioned, along with learning opportunities, through classroom discourse and through the interaction between teacher and student(s) and between student(s) and student(s). Within such assessment episodes, both teachers and students, one could argue, are jointly involved in a continuous appraisal process, where interactional feedback could support intake opportunities and where cognitive processes are evidenced and promoted.

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Christos Theodoropoulos is a doctoral student in the Applied Linguistics program at Teachers College, Columbia University. His research interests include language assessment, L2 teacher

training, and curriculum evaluation. He is also the Associate Director of Curriculum and Staff Development at the English Language Programs at the University of Pennsylvania.