Out of sight, out of mind: The role of salience in second language processing and acquisition

The Noticing Hypothesis (Schmidt, 1990) contends that second language (L2) input processing leading to acquisition relies on attention to and [at least low-level] awareness of features within the input. *Salience*—the extent to which a feature stands out from its environment—of L2 forms has been posited as a key driver of attention and awareness, which, per the Noticing Hypothesis, makes it an important factor in how L2 input is perceived, processed, and ultimately acquired. As further evidence, a meta-analysis by Goldschneider and DeKeyser (2001) found a set of properties to explain morpheme acquisition order in L2 English, which they theorized might all comprise different manifestations of linguistic salience, supporting the above theory. Many more properties have since been theorized to influence the salience of a linguistic form. However, empirical research on these properties as they relate to salience remains scarce, particularly that which considers their individual effects, leaving "a lack of systematic…research comparing acquisition difficulty for morphemes with different degrees of salience" (DeKeyser, 2015; p. 15). To address this gap, we conducted a series of experiments that isolated a subset of theorized salience properties, in order to investigate their individual and interactive effects on attention, awareness, and acquisition of L2 morphological forms. We report here on three of five experiments within this series (the remaining two are ongoing).

In each experiment, L1 Dutch participants (Exp. 1: n=68; Exp. 2, n=138; Exp. 3: n=126) performed an eye tracking reading task in an English-based semi-artificial language called *Englishti*, which includes in its grammar two target morphemes, "*[-]o*" and "*[-]ulp*," (Simoens et al., 2018). These were manipulated differently in each experiment to compare properties believed to influence an L2 form's salience: length, morphological boundedness, and contextual redundancy. The task included two phases: in the learning phase, participants received input flooding of the target morphemes while reading four-sentence *Englishti* stories presented one sentence at a time, then were asked a content question related to the story. In the test phase, participants made grammaticality judgments about individual *Englishti* sentences, half familiar from the learning phase and half new. Eye movement data were analyzed in terms of target morpheme fixation time to measure attention levels. A comparison of fixation times during grammatical versus ungrammatical trials in the test phase measured implicit learning of the rule using a grammaticality sensitivity index (Godfroid, 2016), with the expectation that if the rule was [implicitly] taken in over the course of the learning phase, it will take longer overall to process ungrammatical than grammatical sentences. A retrospective interview following the task determined participants' level of awareness of each form and its meaning. We further analyzed the interaction between salience effects and individual learner variables, including working memory (via a Reading Span Test, adapted from van den Noort et al., 2008) and implicit learning ability (via a Serial Reaction Time task, adapted from Kaufman et al., 2010). We also considered the influence of incidental versus intentional learning contexts, wherein the intentional group received instructions guiding participants toward attention to the grammar of *Englishti* while the incidental group did not.

Experiment 1 (length only) found significantly more attention to the high- (longer) than low-salient (shorter) form according to skipping rate (p < .001), first fixation duration (FFD; p = .027) and total duration (TD; p < .001), but no significant differences based on awareness level, and no evidence of implicit learning of either form, possibly due to low overall salience of both forms (both bound, redundant). Higher working memory scores correlated with shorter FFD, but no effect of implicit learning ability was found. Participants in the intentional learning group showed significantly lower skipping rates than the incidental group, but no significant difference in either fixation measure. Experiments 2 and 3 (boundedness/redundancy and length) preliminary results again show greater attention to the high- (unbound, non-redundant, and/or longer) than low-salient (bound, redundant, and/or shorter) form, which is compounded in forms with multiple high-salient properties (e.g., unbound and longer). Final results of these later experiments, including implicit learning patterns and external factor effects, are expected by January 2025.

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