



The effectiveness of deductive, inductive, implicit and incidental grammatical instruction in second language classrooms



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ABSTRACT

This quasi-experimental study compares the effectiveness of deductive, inductive, implicit and incidental grammar instruction and investigates to what extent complexity influences these results. A total of 981 Dutch students in lower secondary education learning German, English or Spanish as a second language participated in this experiment. The design of the study consisted of a pre-test, a series of lessons about the degrees of comparison and a post-test. Both meta-linguistic knowledge and production of the grammatical structure were tested. By using analysis of variance, differences in students' test scores between instruction forms were examined. The findings show that any kind of grammar instruction (explicit and non-explicit forms) is more effective than no grammar intervention/exposure. Furthermore, complexity of the grammatical structure does not influence the effectiveness results.

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1. Introduction

In the field of second language learning research, the effectiveness of grammatical instruction has been a constantly debated topic. Krashen's hypothesis (1981, 1985, 1994) on the relation between the success of grammatical instruction and the complexity of the grammatical structure has created a rise in interest in this topic, see Norris and Ortega (2000) and Spada and Tomita (2010) for review studies or de Graaff and Housen (2009) for a recent overview. According to his “no interface hypothesis”, simple structures could be taught explicitly, whereas complex ones can only be acquired implicitly and thus cannot be taught. Some studies confirm Krashen's claim (e.g., DeKeyser, 2005). However, de Graaff (1997) argues that complex structures should be taught explicitly to make them more noticeable to the learner. Merely offering language input to the learner would not be enough in these cases. On the other hand, implicit instruction would suffice for simple structures. These different views on the relationship between complexity and instruction form might be partly due to the different definitions of the notion *complexity* used in these studies. However, as de Graaff and Housen (2009) and Spada and Tomita (2010) put forward, most studies show that explicit instruction is the most effective approach regardless of complexity.

As Norris and Ortega (2000) and Spada and Tomita (2010) indicate, the participants in SLA-intervention studies are often adult learners (>18 years of age). Usually they are university students with different linguistic backgrounds who, in these

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studies, are learning the same grammatical construction in a foreign language. These studies are often set up in a controlled learning environment designed as a computer assisted course which participants take individually. Generally, the studies aim at comparing the results of two instruction forms (e.g., implicit and explicit).

Robinson's study on the effectiveness of grammatical instruction (1996) is an important addition to language learning research. He offers a more elaborate division of types of grammatical instruction. In his study, 104 adult learners of English received computerized language training. He compared four instruction forms: implicit, incidental, rule searched, and instructed. Of these, implicit and incidental instructions trigger unconscious acquisition. In these two cases, the participants are exposed to linguistic material and in this way are expected to acquire the grammatical structure offered in this linguistic material. In the first, participants are requested to memorize sentences with the grammatical structure. In the second, they answer text comprehension questions. Robinson also divides explicit instruction into two forms: rule searched and instructed. The participants either have to distil the grammatical rule from the linguistic material (rule searched, i.e., inductive) or that the rule is offered to them from the start (instructed, i.e., deductive). Concrete examples of the four instructional forms can be found in the discussion of teaching materials below. Robinson concluded that explicit instruction was most effective with simple structures. However, implicit learners did not outperform the learners who received explicit instruction with complex grammar.

In this study, we investigate whether explicit grammatical instruction is indeed as successful as put forward in earlier studies such as Norris and Ortega (2000) and de Graaff and Housen (2009) and to what extent complexity of the grammatical structure influences the effectiveness of instruction. Investigating the relation between the complexity of a grammatical construct and the effectiveness of a form of grammatical instruction requires a clear definition of the notion *complexity*. As concluded in de Graaff and Housen (2009) and Spada and Tomita (2010), no generally accepted definition of complexity has been formulated yet. In general, one or more of the following aspects have been found relevant for determining formal complexity (e.g., Hulstijn & de Graaff, 1994; Spada & Tomita, 2010)¹:

1. Reliability: structures are construed by a basic rule and possibly some exceptions to the rule. Grammar rules with no or hardly any exceptions have a high reliability and are thus considered simple. Rules with many exceptions are complex. The formation of the present tense 3rd person singular in English is considered simple: verbal stem +s (or +es when the stem ends in -s): *help-s*. Its German counterpart is more complex: verbal stem +t (or +et when the stem ends in -d/t) but with an extra vowel change (*Ablaut/Umlaut*) with strong verbs having *i(e)* or *a* in the stem: e.g., *lesen* > *lies-t* 'to read', a rule to which there are exceptions as well: *genesen* > *genest* 'to heal'.
2. Structural complexity: to apply a grammar rule, the number of grammatical concepts involved/transformational steps to be taken determines the rule's structural complexity, but see Hulstijn and de Graaff (1994, p. 103) for an extended version in that they consider the number *and/or the type* of steps to be taken of importance. A few steps make a rule simple, whereas complex rules consist of several steps. English *wh*-question formation of the object of a preposition involves seven transformations (Spada & Tomita, 2010) and is thus complex, whereas third person present tense formation is simple as it involves two steps: checking whether the verbal stem ends in *s* and adding +s or +es to the verbal stem.
3. Semantic complexity: rules which have difficult meanings (e.g., display unfamiliar or abstract semantics) are complex whereas rules with clear meanings are simple. Article placement in English is complex (abstract concept); plural noun formation is considered simple (concrete semantics).
4. Transparency: if there is a clear (preferably 1:1) relation between form and semantics, the rule has a high transparency and is therefore classified as simple (e.g., *will* to indicate [intended] future action). Rules lacking such an unambiguous relation are determined as complex. For example, addition of the morpheme -s has more than one function: plural (*book-s*), 3rd person singular (*like-s*), and possessive (*it-s*).

Spada and Tomita (2010) decided to choose only one criterion to determine complexity. The number of transformations required to arrive at the target form (our criterion 2) was adopted to calculate complexity. Grammatical structures which require more than one step are considered complex. As they have to admit in their discussion (Spada & Tomita, 2010), restriction to just one criterion makes their findings vulnerable. In fact, they show that if they had chosen another criterion rather than our criterion 2, their conclusions concerning the relation between complexity and effectiveness of instruction could well have turned out differently. Our approach to this problem is discussed in Section 2.

This study examines the two issues of the effectiveness of different types of grammatical instruction and the complexity of grammatical structures. It is based on the following research questions:

1. What is the most successful instruction form for teaching grammar, based on Robinson's subdivision?
2. Does complexity play a significant role in the effectiveness of instruction forms?

A large-scale quasi-experimental study was set up to investigate the effectiveness of grammatical instruction for the degrees of comparison. A total of 42 regular classes of Dutch students in secondary education learning English, Spanish, or

¹ Besides this formal complexity other factors are assumed to influence the ease of learning like frequency (or: large scope) and the relation L1 ≈ L2 (see Spada & Tomita, 2010). The possible influence of these factors will be taken up in the Discussion section.

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