

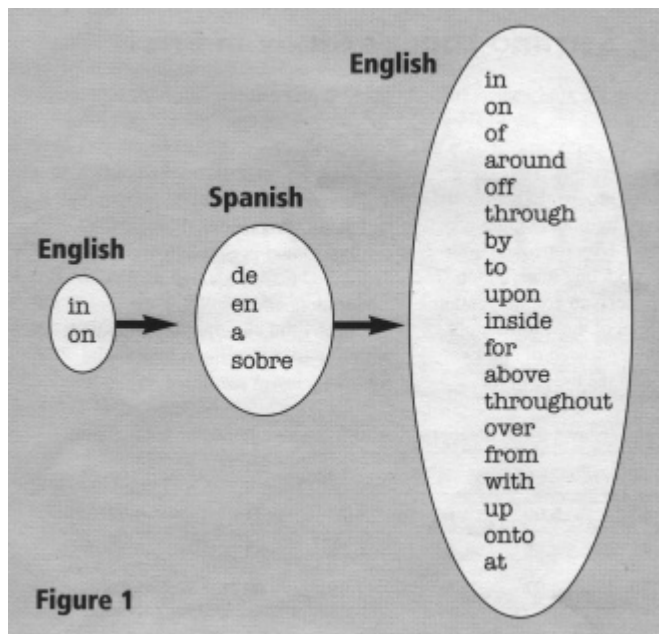
Study Shows Davis Symbol Mastery Effective for Foreign Language Learning

by Abigail Marshall

A study at the University of Arizona has shown that clay modeling of words and concepts is more effective than other methods for learning words representing new concepts in a foreign language. The study, entitled **3-D Clay Modeling Instruction: A Pathway to Spatial Concept Formation in Second Language Learners**, was submitted by Maria Serrano-Lopez in July, 2003, in fulfillment of her doctoral dissertation requirements.

Dr. Serrano hypothesized that a clay modeling procedure, adapted from Davis Symbol Mastery, would be more effective than other instructional methods for learning appropriate usage of foreign-language prepositions that do not have an exact or consistent translation from the student's native language. To test this theory, she compared the effectiveness of clay modeling to learn a set of words with a group receiving traditional, worksheet-based instruction, and a control group receiving no specific instruction at all. All of the subjects in her study were native English speakers enrolled in advanced university-level Spanish classes.

Prepositions are one of the most difficult grammatical structures for second language learners to acquire, because they correspond to different sets of words, with subtle differences as to context and appropriate usage. For example, the English words "in" and "on" can be represented in Spanish by "de", "en", "a", or "sobre", which in turn can correspond to more than a dozen different English meanings (See Fig. 3.1).



These words cannot merely be substituted via direct translation, because proper usage is often based on concepts that do not have similar significance in each language. For example, the words "sobre" in Spanish can be translated as "above" in English. However, in Spanish it is proper to say, "El hombre está **sobre** el caballo," but in

English one would not say, "The man is **above** the horse", but rather would use the preposition **on**.

Because these words also represent spatial relationships, Dr. Serrano theorized that 3-dimensional clay modeling would be a more effective means of learning the concepts than simple written or oral instruction, or by mere practice and exposure to the language. Her theory was confirmed by her study. Although students receiving traditional instruction usually outperformed the control group, the benefits were not consistent and did not appear to be sustained over time. However, the students in the clay-modeling group outperformed both the control group and traditional-instruction group in a systematic manner, and their improvement was more likely to be sustained over time.

Thus, Dr. Serrano concluded that the "clay modeling instruction showed significant advantages over Traditional instruction in helping advanced university learners of Spanish as a second language learn new concepts" not present in English.

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Dr. Serrano's Study in Brief

The participants in the study were native English-speaking students, enrolled in twelve Spanish upper-division classes at the University of Arizona. They were divided into three groups. Experimental Group 1 received traditional grammar based instruction. Experimental Group 2 received Clay-Modeling intervention. The Control Group received no intervention. There were a total of eight instructors. Intervention consisted of one-two hours focusing on the usage of the Spanish prepositions "en," "de," "sobre," and "a," which translate as "in" or "on" in English.

Assessment tools used were:

1. Demographic survey
2. Spanish Prepositional Usage test in English and in Spanish; and 3. the 3-D clay modeling instruction questionnaire.

Each group was pre-tested, post-tested within two days of intervention, and follow-up tested two-three weeks later.

Pre-, Post- and Follow-up Test Means by Type of Treatment (N=number of students):

Treatment	N	Pre-test Means	N	Post-test Means	N	Follow-up test Means
Control	68	5.00	64	4.73	61	4.58
Traditional	71	4.56	61	6.26	63	5.10
3-D Clay	74	4.97	61	7.09	69	5.58