



Acquisition of a Small Artificial Language as an Analogue of Second Language Learning



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Introduction

- Second language learning (SLA) has been developed into a scientific discipline over approximately the last 40 years (Gass & Selinker, 2001).
- Research on SLA and Artificial language learning (ALL) has thus far focused primarily on implicit learning of syntactic structures.
- Implicit research has shown a uniform ability to discriminate above chance as a listener (Schiff & Katan, 2014), while adult learners show vast individual differences (Roberts & Meyer, 2012).
- Due to previous research focusing on implicit learning tasks with a focus on syntactic structures, little is currently known about the conditions which support mastery of new language.
- Tabullo et al., (2012) outlined an ALL protocol which may lend itself to the study of proficient language learning. Which, includes syntax and semantics.
- The inclusion of both a semantic (i.e., word-meaning) and syntax (i.e., word-order) components to the study of language acquisition may give insight into the instructional variables necessary to acquire a complex skill such as language.
- **Purpose:** To evaluate the effects of three instructional approaches (discrimination, exposure and production) on the emergence of novel sentence production in a small artificial language which contains abstract words for familiar shapes and a rare syntactic word-order (i.e., Object-verb-subject; which exists in 1% of known languages, Fromkin, Rodman, & Hyams, 2007).

Artificial Language

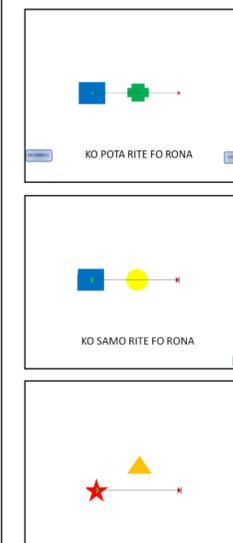
Syntax: Object → Verb → Subject

Word Type	Arbitrary Name	Designated Meaning
Noun Set	SAMO	Yellow circle
	RONA	Blue square
	TABO	orange triangle
	NOLA	Green cross
	POTA	Red star
Verb Set	SIPE	Pass above
	PEMI	Push other
	LESI	Bounce off
	RITE	Pass through
	KEPI	Pass underneath
Case Marker	FO	Indicates subject
	KO	Indicates object

Method

- Participants: 24 college students participated in this study, with 8 students per instructional group.
- Study was conducted in a small University research room, containing a desktop computer, a small video camera with one researcher in the room at all times.
- The experiment consisted of two phases, with each participant being assigned to one of three potential groups (i.e., discrimination, exposure, or production).
- Phase I: each group received a 20-trial discrimination and production pretest, followed by 100 trials of their assigned instruction type, followed by a 20-trial posttest.
- Phase II: If participants did not reach mastery at posttest (i.e., 18/20 correct), then they entered Phase II. Here, they received 20 instructional trials followed by a round of posttests until they either reached mastery or an additional 100 instruction trials were completed.

Instruction types



- Discrimination group was presented with stimulus scenes with either a correct or incorrect written description below the shapes. They were tasked with selecting whether the sentence was correct depending on the presented scene. They would receive feedback as to whether their selection was “right” or “wrong.”
- Exposure group was presented with stimulus scenes and correct written descriptions between the shapes. They could study each scene for as long as they liked before moving on.
- Production group was presented with only stimulus scenes and were tasked with vocally producing the correct sentences. They would receive feedback of either “correct” or, if incorrect, the experimenter would say the correct sentence.

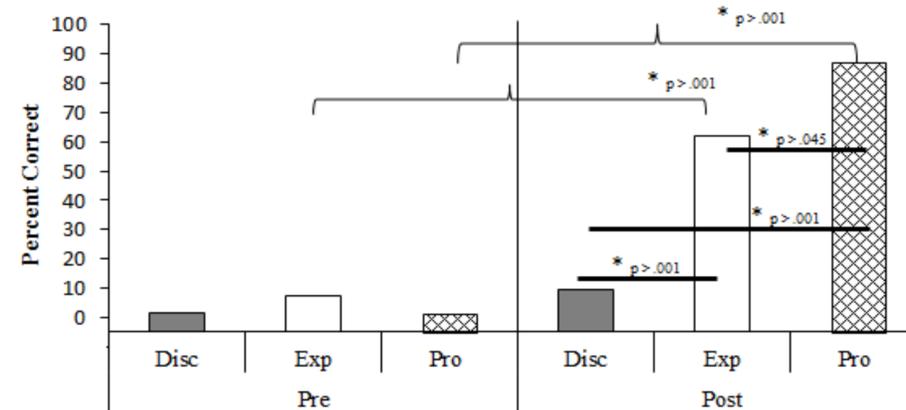
Results and Discussion

- Phase I: The production group performed significantly better than both other groups on both the production and discrimination tests at post. The exposure group performed significantly better than the discrimination group at post.
- Phase II: The discrimination group needed significantly more trials to reach mastery than both other groups. The exposure and production groups were not significantly different.
- These results indicate that having individuals produce the target verbal responses could increase the effectiveness and efficiency second language learning.
- Future research could investigate ways to increase the effectiveness of discrimination instruction. Additionally, future research should investigate the mechanism involved in the increase observed in the exposure group, and the role of the type of feedback in the production group on its effectiveness.

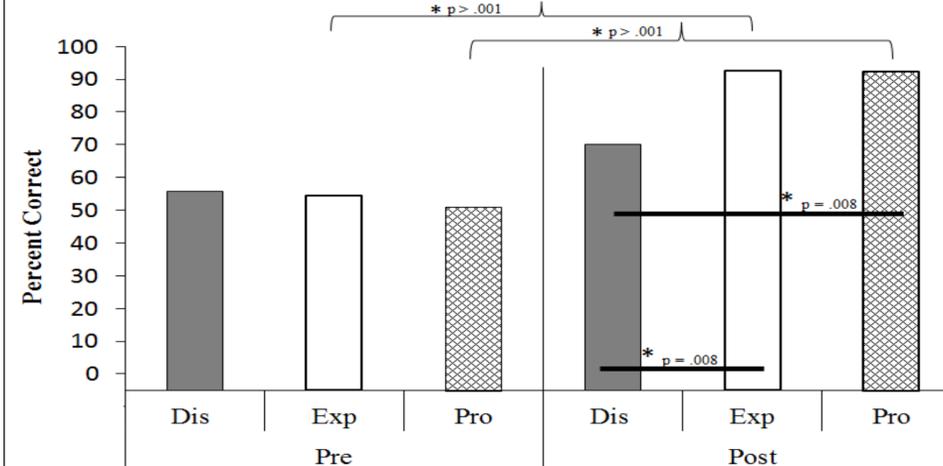
References

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Phase I Production Tests



Discrimination Tests



Trials to Criterion - Phase II

