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Description of the funded research project
1st Call for H.F.R.I. Research Projects to Support Faculty Members & Researchers and Procure High-Value Research Equipment

Title of the research project: Latent Aspects in L2 Acquisition

Principal Investigator: Alexandros Tantos

Reader-friendly title: LAL2A

Scientific Area: Humanities and Arts, Linguistics

Institution and Country: Aristotle University of Thessaloniki, Greece

Host Institution: Aristotle University of Thessaloniki

Project webpage (if applicable): http://lal2a.lit.auth.gr/el/
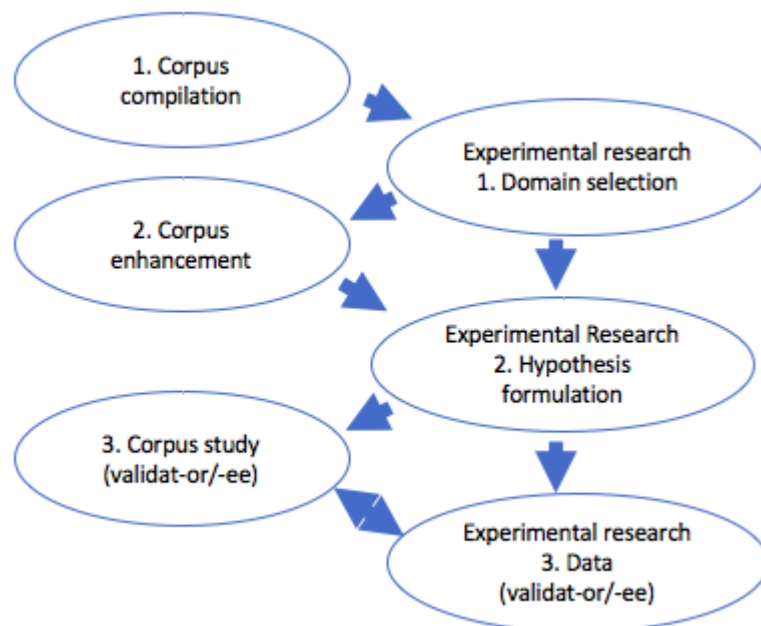
Budget: 199099 €

Duration: 36 months

Research Project Synopsis

The idea for the implementation of the project Latent Aspects in L2 Acquisition (LAL2A) is based on the principle that the benefits of the analysis of linguistic data by machine learning methods should be accessible to both language researchers and teachers of Greek as a second language. Researchers and teachers will be provided with complete and detailed information about the language profile of students, which will be accompanied by enlightening perceptual maps that will describe the students' types of errors. Thus, they will obtain a detailed picture of the path followed in the L2 learning process. This, in turn, becomes a valuable source of feedback for the teacher related to the learning strategies to be implemented in classroom, while highlighting the areas that require teacher's intervention. In this intervention, LAL2A with the its platform, provides a series of tools, which are an application of the latest models in the teaching of L2. Moreover, the language researcher, based on the new methodology that will result from the combined use of written and oral productions of students, as well as advanced psycholinguistic experimental techniques that will be applied in LAL2A, will be driven to a comprehensive approach to the second language learning process.

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Project originality

The originality of LAL2A lies in the demanding matching of seemingly diverse research methods, such as conducting and analyzing psycholinguistic experiments (with the use of an eye-tracker) and collecting and analyzing naturalistic language data in a common interdisciplinary research protocol, as the figure below reveals.

With the LAL2A platform we intend, for the first time in this research area, to use (un)supervised learning algorithms on both, raw, error- and grammatically-annotated and experimental data in order to reveal the most important factors that lie behind all the relevant language-related features through perceptual maps. Perceptual maps provide valuable visual aid for interpreting the way that the interlanguage is internally structured by: a) displaying which errors cluster together and b) by actually allowing its users to name the underlying conceptual factors that play the major role in shaping the interlanguage. One of the distinguishing features of LAL2A is that it allows users to immediately have access to easily interpretable visual maps of learner's error profile and the resulting performance indices and obtain a deep and complete overview of deep properties of learner's interlanguage and their proficiency level at the time. Moreover, LAL2A's platform includes an additional utility for language researchers and/or teachers who are interested in testing their research hypotheses as to which factors play the most distinctive role in shaping learners' interlanguage; namely it provides them the infrastructure for conducting Structure Equation Modeling on the reduced representations brought by the perceptual maps.

Expected results & Research Project Impact

The expected results revolve around the successful connection of language researchers and teachers of L2-Greek, with insights of their students' interlanguage in real time (learner's error profile, recurring patterns of language use, factors that play a definitive role in shaping it). Practically, the collection of annotated (written and oral) learner productions and the conduction of psycholinguistic experiments will result in an open-source software platform that functions as an analytical toolkit not only for language researchers but also for teachers, providing them immediate access to easily interpretable visual maps of learner's error profile, resulting performance indices and a complete overview of deep properties of learner's interlanguage and their proficiency level at the time.

Scientific impact
→ Computer-aided Error Analysis of such a depth will facilitate the emergence of distinct features that can identify certain stages of interlanguage even at the individual's level. In fact, the researcher as well as the teacher will gain methodologically enriched insight in the path the language learning follows.
→ The blending of corpus analysis and advanced psycholinguistic experimentation methods- i.e. eye-tracking to track sentence processing- can be highly rewarding for linguistic theory, as suggested by literature.

Social impact
→ Improvement of linguistic and communicative competence of speakers of Greek as a second language. Communication, in turn, influences social interaction since communicative and social abilities are tightly intertwined (Newman-Norlund et al., 2009).
→ Development of teacher's self-confidence and teaching skills, as the whole process will expand their awareness of interlanguage concerns in L2. The implications for the curriculum design are obvious.
→ Adaptation to the foreign culture, in the form of acculturation, is best facilitated by the learner's self-confidence. Congruence between students' goals and achievements in the course of interlanguage influences adaptation in the foreign environment with reciprocal effects for the learner. (Jiang et al., 2009).

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The importance of this funding

The significant benefits arising from the financing of LAL2A focus around the following areas:

- The laboratory of the Linguistics Department of the Department of Philology of AUTh. is significantly enhanced through the purchase of an eye-tracker, which significantly increases the ability to conduct advanced experiments to test research hypotheses that could not be tested otherwise.

- The quality and the way of cooperation among members of the sector is upgraded, as it allows synergies between researchers from different fields (theoretical, computational and applied linguistics).

- The application of the most modern research methods through the collection and processing of naturalistic data and the conduction and analysis of experimental data.

- promotes the training of young scientists through their contact with the methodological innovations of the project and brings them in touch with the latest developments in linguistic research.

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Bibliography

Jiang, M., R. Green, T. Henley & W. Masten. 2009. Acculturation in Relation to the Acquisition of a Second Language. *Journal of Multilingual and Multicultural Development*, 30, 481-492.

Newman-Norlund, S.E., Noordzij, M. L., Newman-Norlund, R. D., Volman, I. A. C., De Ruiter, J. P., Hagoort P., et al. 2009. Recipient design in tacit communication. Cognition 11, 46-54.

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