

Demetris Lazarou

Primary School Teacher, Cyprus Ministry of Education, Sport and Youth <u>lazarou.d@gmail.com</u>

Introduction

I serve as a primary school teacher in Cyprus (since 2007). I hold a BA (Hons.) in Education Sciences from the University of Cyprus and an MSc in Education, Technology and Society and a PhD in Education from the University of Bristol. My research interests mainly focus on the way argumentation can be promoted in Science Education through Cultural-Historical Activity Theory (CHAT) and how CHAT can be used as a theoretical, methodological and analytical framework in Education. Following, I briefly describe some of the main projects I was involved in, related to CHAT.

CHAT and Human Computer Interaction (MSc research)

CHAT was used as a theoretical, methodological and analytical framework for designing, developing and evaluating the first production cycle of an educational game in Science Education. CHAT provided me with appropriate tools to successfully evaluate the subjects' needs, interests and motives within their actual context (students and teachers), which later served as the basis for the design and development of the game. The research also explored how CHAT can be used as a framework for producing not only usable but also useful computer tools. Although the concepts of "activity systems" and "contradictions" from CHAT were mainly used as the basis for the design and development of the educational game, subsidiary design guidelines from the research fields of Human Computer Interaction and Science Education also contributed significantly to the process. This work has been published in the Journal of Computer Assisted Learning:

Lazarou, D. (2011). Using Cultural-Historical Activity Theory to Design and Evaluate an Educational Game in Science Education. *Journal of Computer* Assisted Learning, 27(5), 424-439.

CHAT and Science Education (PhD research)

The main findings of the research argued that CHAT can provide an appropriate framework for promoting argumentation in primary science education. The research aimed at identifying and describing instances of expansive learning while evaluating the use of the theory as a methodological framework for research conducted in educational settings. In this respect, CHAT was used in the study as a theoretical, methodological and analytical framework. The notions of the activity system, the object and the contradictions, and the expansive learning theory were the main tools that guided the research process. The findings of the research emphasised the various forms of expansive learning that were observed during the two years that the research was running: as a cycle of learning actions, as movement in the zone of proximal development through which contradictions within the relevant systems were identified and resolved, as transformations of the object of the Activity System of Argumentation in Science Education and as boundary crossing events. In the years that followed, the main findings of this research have been presented in various scientific journals and conference proceedings:

- Lazarou, D. (2010). Learning to TAP: An effort to scaffold students' argumentation in Science. In G. Cakmakci & M.F. Taşar (Eds.), Contemporary science education research: scientific literacy and social aspects of science (pp. 43-50). Ankara, Turkey: Pegem Akademi.
- Lazarou, D., Sutherland, R., & Erduran, S. (2016). Argumentation in Science Education as a Systemic Activity: An Activity-Theoretical Perspective. *International Journal of Educational Research*, 79, 150-166.
- Lazarou, D., Erduran, S., & Sutherland, R. (2017). Argumentation in Science Education as an Evolving Concept: Following the Object of Activity. *Learning, Culture and Social Interaction*, 14, 51-66.
- Lazarou, D., & Erudran, S. (2020). "Evaluate What I Was Taught, Not What You Expected Me to Know": Evaluating Students' Arguments Based on Science Teachers' Adaptations to Toulmin's Argument Pattern. *Journal of Science Teacher Education*, 32(3), 306-324.

CHAT and Workshops

As a teacher, I have (officially) utilised CHAT in specific projects I coordinated in certain schools that I have served. The two most important efforts are here briefly described:

• 2014–2015: "Tackling disciplinary problems in Kiti Primary School through the implementation of Cultural-Historical Activity Theory and the Change Laboratory Methodology: A yearly intervention with staff of Kiti Primary School".

Through utilizing the notions of activity system and contradictions, as analytical tools, and methodological tools deriving from the Change Lab Methodology, we devised an instrument for tackling disciplinary problems in our school. The project was presented in a conference in Cyprus.

 2022-2024: "Geology, Seismology and Programming: Breaking the boundaries of the encapsulated classroom and promoting life-long learning".
Our proposal, which won one of the five fundings given to public schools in Cyprus through the EU Funded Project "Learning from the Extremes" (Grant Agreement No.LC-01760255/10105266 LfE), referred to the design and development of a series of units and activities for (i) teaching Geology and Seismology and (ii) promoting Programming and Robotics in our school, by breaking the confines of the traditional encapsulated classrooms and expanding the socio-spatial field of action by collaborating with various stakeholders (e.g., academic, governmental, non-profit organizations). CHAT served as the basis of the theoretical and methodological framework for conceptualizing, developing and completing the project.

Our project also won the SCIENTIX EU Competition "*Make it Open Schooling Competition*" and was presented in a teachers' conference of the SCIENTIX network in Brussels in June 2023.

We are now in the process of writing some papers to publish the work that has been done.