GEORGIA DEDE & GEORGIOS MITKIDIS

Department of Philosophy and History of Science, University of Athens

Modeling the cognitive-cultural parameters that affect the integration of heterogeneous populations in a social system

The presentation involves the effect of various cognitive and cultural factors in the integration of new populations in a society during a number of generations. This research will involve the use of agent-based modeling in a simplified virtual environment. The primary question to be answered is whether the cultural differences are attenuated in a common environment that makes a harmonious co-existence possible without the complete assimilation or the segregation of cultural minorities.

In the last five years there has been a marked increase in the migration flows in the countries of the western world. This increase has led, in many cases, in the empowerment of xenophobic and nativist political forces, and an active conversation regarding the compatibility, integration, and conflict of different civilizations. Migration and adaptation in new environment is not new – human populations have been relocating since our species first emerged. The methods we use to study these phenomena need not be confined in the classical social sciences; with the emergence of computational social and behavioral sciences, we can study these processes in a dynamic and multidisciplinary fashion, using concepts and tools from other scientific domains, such as anthropology or cognitive science.

This study focuses mainly on the way an agent perceives itself as part of a larger whole (irrespectively of the subgroup it happens to belong to), and the way individual cognitive processes, combined with social effects such as social influence and homophily lead to behaviors of imitation, xenophobia, aggression or even in the need of physical relocation to restore the feeling of safety in an environment of similar agents.

Using a version of Schelling's computational segregation model, we studied the effects of various cognitive and cultural parameters in the integration processes in the span of generations. We use common language and common everyday life that natives and second-generation immigrants share as purely cultural parameters, and imitation, individual tolerance and the feeling of individual satisfaction as purely cognitive parameters. These parameters are, of course, interacting and to a degree are products of social and more general environmental processes and effects, as well as parts of feedback loops that effect the individual as well as the group.

In this research we will also investigate the well-known finding from the field of classical sociology , according to which the attitudes of second generation immigrants is correlated with the degree of integration of their parents; the general rule is that the immigrants whose parents are not well integrated will be more conservative and less welcoming of new immigrant arrivals. In practical terms, this will be seen in the local concentrations and the degree of heterogeneity of the population.

IRINI GAKI, IOANNIS SPANTIDAKIS, ELENI VASILAKI,
& AGGELIKI MOUZAKI
Department of Primary Education, University of Crete

Improving reading comprehension through the enhancing of strategies for the production of communicative texts

Written speech is an effective tool of thought and communication, as well as a flexible tool of achievement of various goals in one's life. Reading comprehension and production of written speech are deliberate, dynamic and laborious problem-solving procedures whose close relation and interaction have been studied for years. Many studies have investigated the effect of reading comprehension on the production of written speech, although only few investigations have focused on the effect of production of written speech on reading comprehension. The aim of the study is to design, implement and evaluate an intervention program providing visual, verbal and social-procedural facilities to students, either having writing disabilities or not, in order to determine whether the development of metacognitive knowledge and skills concerning writing have any impact on students' reading comprehension, as well as to investigate the interaction between production and comprehension of written speech. Three 3rd grade groups took part in the study. Two of the groups were members of the experimental group and the third was the control group. The teaching approach utilized was "acquiring knowledge through apprenticeship" and mentoring in the context of instructional scaffolding. Experimental-group students who were taught metacognitive strategies concerning writing through the genre-based-procedural approach appear to develop the metacognitive knowledge and skills relevant to reading comprehension. Study findings also indicated a positive interaction between the production and comprehension of communicative texts.

ARISTEA MAVROGIANNI[1], ELENI VASILAKI[1], IOANNIS SPANTIDAKIS[1], ELENI PAPADAKI-MICHAILIDI[1], & MICHALIS LINARDAKIS[2]

[1]Department of Primary Education, University of Crete

[2]Department of Preschool Education, University of Crete

Adaptation to the Greek population of the Metacognitive Awareness of Reading Strategies Inventory (MARSI) version 1.0

Metacognitive strategies in reading are self-monitoring and self-regulating activities, focusing on both the process and the product of reading. They are designed to increase readers' knowledge of awareness, to improve their reading comprehension, and to evaluate the whole attempt. The present study is examining the psychometric properties of the Greek version of Mokhtari and Reichard's (2002) Metacognitive Awareness of Reading Strategies Inventory (MARSI) version 1.0, which consists of Likert 5 rating scale of 30 statements about what students do when they read school-related materials. First, MARSI scale is designed as a tool for enabling students increase metacognitive awareness and strategy use while reading. Second, teachers can be provided with a reliable means of assessing, monitoring, and documenting the reading strategies used by students. Third, MARSI scale can serve as a helpful instrument for teachers and researchers in investigating the impact of teaching strategic reading on students' reading comprehension. On the one hand teachers can use the data obtained from the tool as a means of monitoring students' reading progress. On the other hand by using the individual and group average scores researchers can derive a profile designating students along the three subscales of the inventory.

When adapting and weighting the scale to the Greek population, the standards for ensuring psychometric integrity, conceptual validity and the adaptation of foreign language / psychometric tools are strictly adhered to. The sample consists of 1264 students of 12-24 yrs. The inventory was field-tested with a representative sample of students in Gymnasium (aged 12-15) and Lyceum (aged 15-24) drawn from urban, suburban, and rural school districts in Greece. Participation in the study was voluntary and the students were informed that all results were confidential. The scale was distributed and completed by the students on the computer in Google Forms.

The Reliability Analysis of the MARSI scale has shown a Cronbach's alpha index of 0.92 which is proving a high reliability index. Afterwards Exploratory Factor Analysis was conducted in order to explore the linear combination of the variables. A choice was made of the five most significant factors explaining the 48% of the total variance. Depending on the weight of the variables on the results some of them were excluded and Exploratory Factor Analysis was again

conducted on the remaining variables. We observed that the factors are grouped differently in the Greek version of the scale. This fact, however, can be interpreted by taking into account the differences between the American and the Greek educational system and also the learning habits of the Greek students. Depending on the loading of the variables in the results, some were excluded and the factorial analysis was again performed on the remaining 16 variables. The Reliability Analysis of the 16 statements scale gave Cronbach's alpha index of 0.84.

ATHINA KARAMANIDOU & DIMITRIS PNEVMATIKOS

Department of Primary Education, University of Western Macedonia

Examining explanatory co-existence through dual process theories by eye tracking methodology

Recent findings in Cognitive Science have shown that after systematic teaching, intuitive beliefs are not rejected but suppressed, remaining active even during adulthood. Scholars in Cognitive Science suggested dual process theories (DPT) as a possible theoretical vehicle to interpret the "explanatory co-existence" of both scientific and intuitive beliefs in the same mind. According to the DPT, a purely intuitive process is associated with the rapid reaction (Type 1 processing) and is competing with a more demanding analytical processing associated with the slow response (Type 2 processing). Defining features of Type 1 processing are an autonomous process and the independence of cognitive ability. Features of Type 2 processing are cognitive decoupling, mental simulation and its relation to cognitive ability. Dual process theorists have defined the belief bias as individuals' tendency to assess conclusions by empirical truth (Type 1 processing) and not by logical necessity or validity of syllogism (Type 2 processing). For example, asking people to evaluate the conclusion of a valid syllogism (e.g., "All mammals walk. Whales are mammals. Therefore, whales walk"), they incorrectly respond that the conclusion does not follow logically from the premises, or they spend more time to respond correctly. We suggest that "explanatory co-existence" could be examined by adapted on dual process methodology tasks. We assume that the "whole number bias" and the "intuitive belief bias" could be detected by the phenomenon of belief bias, as children and university students assess the validity of deductive syllogisms which are compatible and incompatible with intuitive beliefs. In addition, individual differences that explain the belief bias are examined regarding age and gender. In the current paper, however, we will present the evidence from a group of adults. The participants were examined on a series of valid syllogisms half of which the result was incompatible with the everyday experience. The accuracy of the responses and the reaction time were recorded. The analysis showed that participants are less accurate or spent more time

to validate a syllogism when, (based on evidence coming from previous studies on conceptual change studies), it is incompatible than with those that they are compatible with their initial beliefs adults might had. Moreover, it is assumed that eye movements during the validation of the syllogisms could elucidate the process the individuals follow, and particularly the information they use to validate the different types of syllogisms. Hense, the eye-movements during to the process of validation of the syllogisms were recorded by the Tobii Eye Tracker. Indeed, the visualization of the eye movements showed different elements of information that the individuals use when they decide about the validity of the different syllogistic reasoning problems in the compatible and incompatible condition.

TRIANTAFYLLIA BOZINI, ALEXANDRA THEODOROPOULOU, ERIFYLLI TSIREMPOLOU, & ANGELIKI GENA

National & Kapodistrian University of Athens

Executive Functions of Children with Autistic Spectrum Disorder (ASD): A pilot study of conceptual parameters and therapeutic intervention

Executive functions (EF) are by definition deficient in people in the Autism Spectrum. Deficits in EF are associated with difficulties in skills such as adaptive behavior, school performance, and social interaction. It is likely that there may be differences among children with ASD regarding EF, such as working memory, inhibitory control and cognitive flexibility. The purpose of this study is to assess and teach skills of executive functions, specifically working memory, inhibitory control, and cognitive flexibility, as well as to investigate whether there are overlaps in the three areas mentioned above. This probability will be studied by examining whether an intervention in one executive skill affects another. The participants in this study are a 7 year-old girl and a 6.6 year-old boy diagnosed with ASD, who are pupils who attend first grade in regular education without receiving any form of support in school. The effectiveness of the intervention - based in the science of Behavioral Analysis and the use of techniques such as positive reinforcement, shaping and modeling - will be evaluated by direct observation and the use of a multiple baseline across response categories experimental design. It is expected that there will be an overlap among the EFs under study but an increase in all target responses for both participants following the introduction of intervention. This outcome will lead to the conclusion that we can treat EFs as operant behavior.