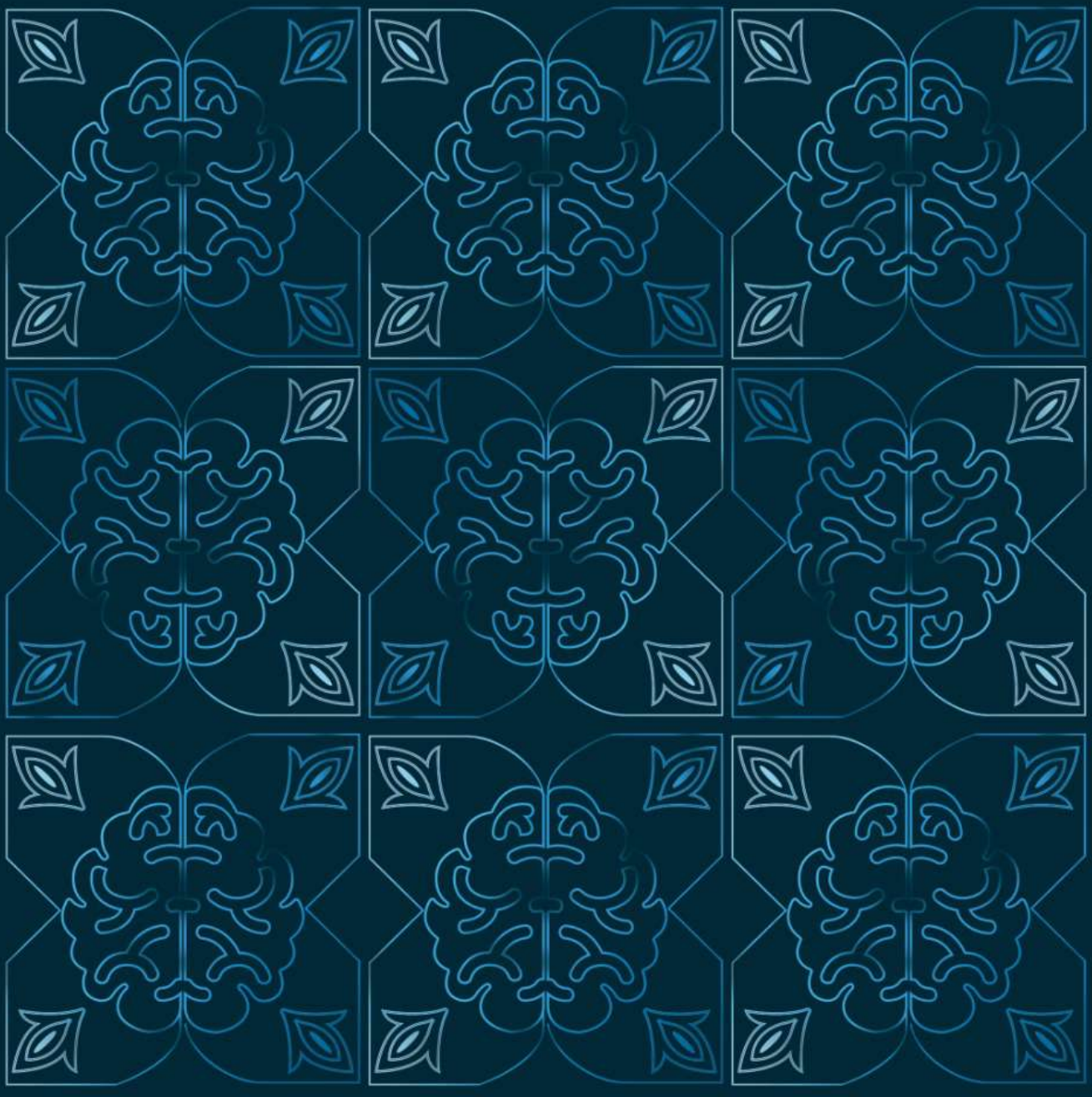
SCSC 2024

6TH ANNUAL MEETING OF
SOCIETY FOR THE COGNITIVE
SCIENCE OF CULTURE

BOOK OF ABSTRACTS



Sixth Annual Meeting of the Society for the Cognitive Science of Culture

April 10-13 2024, Valencia, Spain

BOOK OF ABSTRACTS

GENERALITAT VALENCIANA
Conselleria de Educación, Universidades y Empleo

Organizing Committee

Manuel Perea (Chair), Universitat de València
Marta Vergara-Martínez (General Secretariat), Universitat de València
María Fernández-López (Deputy Chair), Universitat de València
Ana Marcet (Treasury Management), Universitat de València
Melanie Labusch (Treasury Management), Universitat de València
Teresa Civera, Universitat de València
Sarvenaz Changizi, Universitat de València
Inka Romero-Ortells, Universidad Nebrija
Zeynep Özkan, Universitat de València
Francisco Rocabado, Universidad Nebrija
José Luis Tapia, Universidad Nebrija
Gorka Ibaibarriaga, Universidad del País Vasco
Diana Esteve, University of Cambridge, *United Kingdom*

Scientific Committee

Falk Huettig, Max Planck Institute, *The Netherlands*
Susana Araújo, Universidade de Lisboa, *Portugal*
Alexis Hervais-Adelman, University of Zurich, *Switzerland*
Régine Kolinsky, Université Libre de Bruxelles, *Belgium*
Thomas Lachmann, University of Kaiserslautern-Landau, *Germany*
Zohar Eviatar, University of Haifa, *Israel*
Jon Andoni Duñabeitia, Universidad Nebrija, *Spain*
Ana Baciero, Universidad Complutense de Madrid, *Spain*
Ramesh Mishra, University of Hyderabad, *India*
Tânia Fernandes, Universidade de Lisboa, *Portugal*
Bernhard Angele, Universidad Nebrija, *Spain*
Joshua Snell, Vrije Universiteit Amsterdam, *The Netherlands*
Pablo Gómez, Skidmore College, *United States*
Eva Gutierrez-Sigut, University of Essex, *United Kingdom*
Joana Acha, Universidad del País Vasco, *Spain*
María Fernández-López, Universitat de València, *Spain*
Ana Marcet, Universitat de València, *Spain*

Program of the Sixth Annual Meeting of the Society for the Cognitive Science of Culture, April 10-13, 2024, Valencia, Spain

Venue: School of Psychology, Universitat de València

Wednesday, April 10th

17:00-19:10	**Registration**
17:30-19:00	Graduation Hall (Salón de Grados) ***Invited Workshop*** **Becoming a good steward of data with tidyverse tools** Pablo Gómez, Skidmore College Auditorium (Salón de Actos) ***Public Lecture (Outreach Activity)*** **Perspectivas Culturales a Través de la Iconografía: Un Diálogo entre Ciencia Cognitiva y Diseño** (in Spanish) Helga Ambak [1], María Fernández-López [2] [1] Independent Graphic Designer and Illustrator [2] Universitat de València

Thursday, April 11th Auditorium (Salón de Actos)

8:45 – 9:30	**Registration**
9:30 – 9:40	Opening Ceremony
9:40 – 11:15	***Oral session A: Language Learning, Literacy, and Cognitive Development*** 9:40-9:55 **The enhanced literate mind hypothesis** Falk Huettig 9:55-10:05 **The effects of schooling on language structure** Damián Blasi and Ivan Kroupin 10:05-10:20 **Humans as next-token predictors: measuring the flow of memes through minds** Mathew Cashman 10:20-10:35 **The role of morphology in novel word learning: A Registered Report** Olga Solaja and Davide Crepaldi 10:35-11:50 **Examining culture's influence on emotion conceptual spaces** Adel Chaouch-Orozco 10:50-11:05 **Holistic when useful, analytic when required: Literacy promotes flexibility in face processing** Régine Kolinsky, Ana Franco, Isabel Leite, Paulo Ventura, and Béatrice de Gelder

	11:05-11:15 Discussion
11:15 – 11:45	Coffee break
11:45 – 13:25	***Oral session B: Cognitive Science Applications in Society and Education*** 11:45 – 12:00 **The long causal pathway from an early neurodevelopmental deficit to an impaired cultural technique** Thomas Lachmann 12:00– 12:15 **Still lost in the mirror but only for nonreversible letters! Masked priming effects during visual word recognition by dyslexic college students** Tânia Fernandes, Mariona Pascual, and Susana Araújo 12:15– 12:30 **Should science address non-scientific internet hypes? The case of Bionic Reading** Joshua Snell 12:30– 12:45 **Examining the electrophysiological signature of inter-letter spacing on visual word recognition: An ERP study** Teresa Civera, Marta Vergara-Martínez, and Manuel Perea 12:45– 13:00 **Reading in the rain: do we care about the weather?** Jon Andoni Duñabeitia 13:00– 13:15 **The impact of cognitive science on road safety practices** Jose L. Tapia and Jon Andoni Duñabeitia 13:15– 13:25 Discussion
13:25 – 15:00	Lunch
15:00 – 16:00	***Keynote lecture***: Dr. Shanley Allen (U. Kaiserslautern-Landau) ***Increasing diversity in language acquisition research: The Sketch Acquisition Project with illustrations from Inuktitut***
16:00 –17:00	Poster session and coffee **Is the vertex effect modulated by context when naming words?** Laura Mealha, Rita Pires, and Tânia Fernandes **Single letters are objects of perceptual expertise: Insights from electroencephalography and multivariate pattern analysis** Miguel Domingues, Susana Araújo, Tânia Fernandes, and Inês Bramão **Weathering Word Recognition: Investigating the impact of sunny and rainy virtual environments on lexical processing** Laís Muntini, Francisco Rocabado, Jorge González Alonso, and Jon

	Andoni Duñabeitia **The Interplay of Gaze and Speech Perception in Audiovisual Content in L1 and L2** Inka Romero-Ortells, Manuel Perea, and Jon Andoni Duñabeitia **Two Bilingual Populations Are Influenced by Masked Translation Priming** Camille Scrimshire, Sara Alicia Amador, Andrea González-García Aldariz, and Pablo Gómez **An Experimental Method to Induce Tailwind/Headwind Asymmetries** Pablo Gomez, Kaitlin Reif, Lucy Altman-Coe, Lila Glanville, and Allison Faulds **Mind in Motion: Unveiling Organism Behavior Through Movement Tracking** Regina Zaghi-Lara, Luis M. Martínez, and Felipe Criado-Boado **The integration of generative language AI in simulated learning environments** Jose L. Tapia, Francisco Rocabado, Ana Sanz Cortés, Eva García-Carpintero Blas, and M. Lorena Pedrajas **Critical thinking dispositions, media literacy and basic human values as predictors of the trust in public institutions in Serbia during the COVID-19 crisis – preliminary data analyses** Aleksandar Bulajic **The organization of semantic associations between senses in language** Jorge Andres Alvarado Valencia, Carlos Velasco, and Alejandro Salgado-Montejo **Gender Agreement and the Parafoveal Processing of Definite Articles in Spanish** Marina Serrano-Carot and Bernhard Angele
17:00– 17:30	Business meeting SCSC

Friday, April 12th Auditorium (Salón de Actos)

9:30 – 10:30	***Keynote lecture*: Dr Núria Sebastián-Gallés (U. Pompeu Fabra)** ***Infants' early development through the lens of language***
10:30 – 11:00	Coffee break
11:00 – 13:00	***Oral Session C: Multilingualism, Language Switching, and Cultural Influences*** 11:00-11:15 **Dynamics of phonetic-level language control in language switching with a letter-naming paradigm** Feng Ji, Yong Zhang, and Markus Damian 11:15-11:30 **Language switch costs in sentence comprehension between Chinese and English: Evidence from self-paced reading**

	Mengyan Zhu, Markus Damian, and Patrick Sturt 11:30-11:45 **Harmony in sight or how vowel harmony modulates visual word recognition: Evidence from Turkish** Zeynep G. Özkan, Berceste Özdemir, Pablo Gómez, and Manuel Perea 11:45-12:00 **Cultural Sensitivity in Bilingualism Assessment: Introduction of the Perceptions of Puerto Rican Bilingualism Scale** Samantha Velo 12:00-12:15 **The mind's mystery** José Morais 12:15-12:30 Discussion
12:30 – 14:30	Lunch
14:30 – 15:30	SEPEX Conference ***Keynote lecture***: Dr. Carlos Velasco (IB Norwegian School) ***Crossmodal correspondences across cultures***
15:30 – 16:30	***Oral session D: The Impact of Technology and Material Interaction on Cognition*** 15:30-15:45 **Lower sampling rates may be the key to closing the eye-movement gap in reading research** Bernhard Angele, Zeynep G. Özkan, Marina Serrano-Carot, and Jon Andoni Duñabeitia 15:45-16:00 **Humans make materials that make humans. The XSCAPE project on Material Minds** Jaime Almansa Sánchez, Felipe Criado-Boado, and Luis M. Martínez 16:00-16:15 **Comparison of VR/Mobile Goal-Oriented Games and ACE-III for Cognitive Assessment: A Pilot Study** Veeky Baths 16:15-16:30 **The Invisible Threat: Incidental Processing and the Confusability of Logos** Francisco Rocabado, Manuel Perea, and Jon Andoni Duñabeitia

Saturday, April 13th (Venue: Third Floor Classroom at La Nau, Downtown Valencia)

9:30 – 10:30	***Keynote lecture*: Dr. Denis Drieghe (U. Southampton)** ***Crosslinguistic examinations of eye movements during reading***
10:30 – 11:45	***Oral Session E: Cognitive Processes in Reading and Language Perception***

	10:30-10:45 **Case matters: The effect of letter-case in brand names during sentence reading** Melanie Labusch and Manuel Perea 10:45-11:00 **With or without you? The role of diacritical vowels when reading European Portuguese words** Montserrat Comesaña, Ana Costa, Ana Rita Sá-Leite, María Fernández-López, and Manuel Perea 11:00 -11:15 **Spaces or colors? The role of marking word boundaries in reading aloud in Javanese** Xiaoyun Wang, Hermiyanti Tri Halisiana, and Manuel Perea 11:15 -11:30 **Everyday touch typists: incidental expertise in typing** Svetlana Pinet 11:30 -11:45 **The impact of typing and handwriting experience in children's letter and word learning: Implications for literacy development** Gorka Ibaibarriaga, Joana Acha, and Manuel Perea
11:45 – 12:00	Conference closing

Abstracts (Keynote Speakers, Invited Workshop, and Open Lecture)

Invited Talk

Thursday 11 April, 2024 15:00 to 16:00

Increasing diversity in language acquisition research:
The Sketch Acquisition Project with illustrations from Inuktitut

Shanley Allen
University of Kaiserslautern-Landau

We currently have language acquisition data from only about 1.5% of the world's languages (Kidd & Garcia 2022). This severely hampers our efforts to understand the process of language acquisition in its full diversity. In this talk, I will report on the Sketch Acquisition Project – an initiative to expand our knowledge of language acquisition by systematically documenting acquisition in previously unstudied or understudied languages, based on five hours of spontaneous speech data from children ages 2-4. I will then provide examples from Inuktitut (Inuit) showing how analyses based on this acquisition sketch data compare with analyses based on a larger and more comprehensive data set. This includes classic findings from the literature (e.g. mean length of utterance increases with age, deictic gestures emerge early), findings related to typological features of Inuktitut (e.g. demonstratives, ergative case), and findings that have engendered major debate (e.g. passives are acquired late, optional infinitives are a feature of early language). The results strongly suggest that acquisition sketches can yield reliable results for frequent phenomena and strong trends, can help develop solid hypotheses for larger studies, and can support Infants' early development through the lens of language

Invited Talk
Friday 12 April, 2024 9.30 to 10:30

Infants' early development through the lens of language

Núria Sebastián-Gallés
Universitat Pompeu Fabra

Infants do not feel the world as "one great blooming, buzzing confusion"; instead, from the first day of life, they are well-equipped to deal with the great complexity of the surrounding world. One complex signal they are well prepared to process is language. In less than 6 months, they are able to segment words from continuous speech and to associate them to visual referents. At the same time, they also are able to use language to make sense of the complex social relationships of the groups they grow up in. In this talk, I will overview the fascinating journey infants' minds make in the first months of life through the lens of language(s) learning.

Invited Talk

Friday 12 April, 2024 14.30 to 15:30

SEPEX Conference

Crossmodal correspondences across cultures

Carlos Velasco

BI Norwegian Business School

An overview of the research on crossmodal correspondences across cultures is discussed. Crossmodal correspondences refer to associations between features or attributes, real or imagined, across the senses, such as the association that exists between shape curvature and gustatory taste or auditory pitch and smells. This area has seen a surge of interest from various disciplines—ranging from psychology and neuroscience to art and environmental design—owing to its implications for understanding human perception and cognition, as well as practice. Here, a general overview of how these associations are conceptualized will be presented, along with the various types of correspondences identified, and the mechanisms believed to underlie them (e.g., physiological, semantic, statistical, and affective). Importantly, this talk will focus specially on the impact of culture on these correspondences, highlighting both seemingly general patterns of associations and culturally specific variations. Moreover, the results of ongoing research evaluating correspondences across previously unstudied cultures will be presented. The exploration of crossmodal correspondences across cultures not only furthers our comprehension of this key factor influencing multisensory perception but also holds significant potential for applications in multisensory design and marketing, some of which will also be covered here. To conclude, remaining gaps and directions for future inquiry will be presented.

References

Motoki, K., Marks, L. E., & Velasco, C. (in press). Reflections on cross-modal correspondences: Current understanding and issues for future research. *Multisensory Research*.

Invited Talk

Saturday 13 April, 2024 9.30 to 10:30

Crosslinguistic Examinations of Eye Movements during Reading

Denis Drieghe

University of Southampton

Eye movement research during reading has played a crucial role in advancing our understanding of the cognitive processes active during reading. Crosslinguistic research in this field explores which facets of reading behaviour are universal and which are language specific. In this talk, I will provide an overview of findings derived from three large crosslinguistic research projects. In Liversedge et al. (2016), we examined eye movement behavior of native speakers during reading of materials that were closely matched on content in three languages, Chinese, English and Finnish. Analyses showed substantial similarities in statistical models despite striking visual and linguistic differences between these languages. Secondly, in the Ghent Eye Movement Corpus (GECO; Cop, et al., 2015), we examined eye movements of unbalanced bilinguals who read half a novel in their first language (L1, Dutch) and the other half in their second language (L2, English), as well as monolinguals reading in their native English. Finally, the recent successor of GECO, the Multilingual Eye Movement Corpus (MECO; Siegelman et al., 2022), contains data from unbalanced bilinguals reading in L1 for a variety of languages and in English as L2. Analyses in the MECO show the importance of individual differences in reading behaviour as how often a subject skips words in L2 is predicted strongly by skipping behaviour in L1, even independent of L2 proficiency. The presented research will underscore the importance of cross-linguistic comparisons in advancing our understanding of the universal and language-specific aspects of language processing as manifested in eye movements during reading.

Invited Workshop

Wednesday 10 April, 2024 17.30 to 19:00

Becoming a good steward of data with tidyverse tools

Pablo Gómez

Skidmore College

The Tidyverse Workshop is designed to introduce participants to the suite of R packages known as the Tidyverse, which is used for its capabilities in data manipulation, visualization, and analysis. The session will cover core Tidyverse packages such as ggplot2 for data visualization, dplyr for data manipulation, and tidyr for data tidying, among others. Through hands-on exercises, participants will learn how to transform their raw data into insightful visual representations and robust statistical analyses. By the end of this workshop, attendees will possess a foundational understanding of the Tidyverse.

Invited Open Lecture

Wednesday 10 April, 2024 17.30 to 19:00

Perspectivas Culturales a Través de la Iconografía: Un Diálogo entre Ciencia Cognitiva y Diseño

Helga Ambak [1] and María Fernández-López [2]

[1] Independent Graphic Designer and Illustrator

[2] Universitat de València

Esta conferencia surge de conversaciones diarias entre una ilustradora y una científica cognitiva. La colaboración entre estas dos disciplinas, aparentemente distantes, desvela la complicada relación entre la cultura, la mente y la expresión visual. Al explorar cómo la cultura afecta nuestra interpretación de las imágenes, nos adentramos en nuevas formas de apreciar la diversidad cultural y la riqueza de la creatividad humana. La charla busca promover la reflexión sobre cómo las imágenes influyen en el pensamiento y, a su vez, cómo el pensamiento influye en las imágenes. Todo ello con el fin último de inspirar nuevas perspectivas sobre el poder de la iconografía para unir y superar los límites culturales y cognitivos.

Abstracts (Oral Communications)

Oral Communication
Thursday 11 April, 2024 9:40 to 9:55

The enhanced literate mind hypothesis

Falk Huettig
Max Planck Institute for Psycholinguistics

In this talk I will first argue that all neurotypical native language users share a ‘basic language cognition’ in the domain of oral informal language. As individuals learn to read and write, they are, from then on, exposed to extensive written-language input and become literate. This is the Enhanced Literate Mind (ELM) hypothesis: Literacy acquisition leads to, both, increased language knowledge as well as enhanced language and non-language perceptual and cognitive skills. This leads to certain implications for any general theory of language and cognition. First, a general theory must be able to describe the conditions that lead to enhanced linguistic and non-linguistic skills beyond ‘basic language cognition’. Second, a general theory must be capable of explaining why some elements of a language are acquired by all speakers while others are not.

Contact: falk.huettig@mpi.nl

Oral Communication

Thursday 11 April, 2024 9:55 to 10:10

The effects of schooling on language structure

Damián Blasi [1] and Ivan Kroupin [2]

[1] Pompeu Fabra University

[2] London School of Economics and Political Science

Formal schooling shapes the typical cognition of developing individuals in a number of ways, including dramatic increases in the disposition to parse the world into discrete, highly-regular domains bounded by abstract rules, and a facility with generating and manipulating such abstractions (a capacity at the core of domains such as fluid processing, executive function and formal logical reasoning). Given that universal, mandatory schooling has for many generations shaped the minds of individuals across well-studied populations, it is plausible to assume that much of our understanding of human cognition is mediated by schooling - confusing nature with nurture. A crucial domain in which schooling and innate mechanisms have not been systematically disentangled is language structure and language use. Here we develop the outline of such a project here, building on findings from developmental psychology and language sciences. Specifically, we hypothesize a number of mechanisms through which schooling can have a long-lasting impact on the conventionalized systems of language which make up the overwhelming majority of well-studied corpora and languages. We illustrate this with a preliminary study involving schooled and unschooled speakers of Herero (Bantu), where we analyze the typical strategies of discourse reference employed by individuals in the Pear Story task.

Contact: damianblasi@gmail.com

Oral Communication
Thursday 11 April, 2024 10:10 to 10:25

Humans as next-token predictors: measuring the flow of memes through minds

Mathew Cashman
University of Warwick

Being able to measure what information ends up in which minds is a necessary first step to explaining how it got there. Cultural evolution is changing humanity much faster than genetic evolution, but at present we lack a way to empirically ground models in a quantitative, content-agnostic way analogous to counting alleles in models of genetic evolution. A quantitative view of what information ends up in which minds permits modeling of the many processes at many levels that govern its flow, from informational legacies left to descendants to sharing on social media. To address this gap we take Shannon's classic cloze-completion game for estimating the entropy of written language and turn it on its head: instead of using minds to learn about written language, we use language to learn about minds. Entropy estimates generated based on a test set from e.g. Harry Potter will differ between a treatment group (Readers, people who have read Harry Potter), and a control group (Non-Readers). This difference is driven by the way their minds have been changed by reading the book. It is an expression, in bits, of how much information from the book is actually stored in Readers' minds and capable of influencing behavior.

Contact: matt@cashman.science

Oral Communication

Thursday 11 April, 2024 10:25 to 10:40

The role of morphology in novel word learning: A Registered Report

Olga Solaja and Davide Crepaldi

International School for Advanced Studies (SISSA)

The majority of the new words that we learn everyday as adults are morphologically complex; yet, we don't know much about the role of morphology in novel word learning. In this study, we tackle this issue by comparing the learning of (i) suffixed novel words (e.g., flibness), (ii) novel words that end in non-morphological, but frequent letter chunks (e.g., fliban), and (iii) novel words with non-morphological, low-frequency endings (e.g., flibov). Eighty-four participants learned novel words incidentally through sentence reading, while their eye movements are monitored. We show that morphology has a facilitatory role compared to the other two types of novel words, both during learning and in a post-learning recognition memory task. We also showed that participants inferred meanings for segments of novel words (e.g., if flibness denotes happiness, then flib would mean happy). Notably, this inference was not exclusively linked to suffixes (flib would also mean happy in fliban and flibov). These findings suggest that the cognitive system tends to associate similar meanings with similar words and word fragments.

Contact: olga.solaja@gmail.com

Oral Communication
Thursday 11 April, 2024 10:40 to 10:55

Examining culture's influence on emotion conceptual spaces

Adel Chaouch-Orozco
The Hong Kong Polytechnic University

Emotions are fundamental to our psychological well-being and cognition. However, substantial gaps persist in our understanding of emotions. This study addresses a fundamental question in emotion research: Are emotions universal, or shaped by culture? We investigate emotion concepts across languages spoken in diverse cultures. We conducted a spatial arrangement task where 50 native speakers of 15 languages organized 47 emotion concepts on a screen based on perceived semantic relationships. This method allows us to examine, for the first time, the organization of language-specific emotion conceptual spaces across cultures. If, as suggested by constructionist theories, culture influences emotion categorization, emotion lexicons should be more similarly organized in languages spoken in related cultural groups. Network and linear mixed-effects model analyses indicate that emotion concepts are significantly more alike in languages spoken in culturally related societies (assessed using various cultural relatedness proxies). Crucially, this effect is irrespective of language family. Moreover, our data suggest that negative concepts (i) change more across cultures and (ii) are more semantically distinct. Importantly, the semantic differentiation of negative concepts is associated with more hierarchical and collectivist cultures. We interpret these findings in the context of constructionist theories of emotions.

Contact: adchaor@gmail.com

Oral Communication

Thursday 11 April, 2024 10:55 to 11:10

Holistic when useful, analytic when required: Literacy promotes flexibility in face processing

Régine Kolinsky [1], Ana Franco [1], Isabel Leite [2], Paulo Ventura [3], and Béatrice de Gelder [4]

[1] Fonds de la Recherche Scientifique-FNRS, Université Libre de Bruxelles

[2] Universidade de Évora

[3] Universidade de Lisboa

[4] Maastricht University

Neuroscientific studies have reported an impact of literacy (reading-writing) acquisition not only on the growth of word responses in the left ventral occipitotemporal cortex, but also on the nearby and/or contralateral (right) activations to other visual objects, especially faces. Yet the behavioral impact of literacy on face processing has rarely been studied, and when it has, only focused on non-alphabetic scripts, and failed to include ex- illiterates, who acquired literacy at adult age. We report a set of three experiments examining analytic and configural aspects of face processing as well as face memory in three groups of Portuguese adult participants: unschooled illiterates, unschooled ex-illiterates, and schooled literates. Whereas memory for faces did nor vary between groups, literacy impacted both analytic and configural processing. When the task allowed configural processing, illiterates displayed less correct responses on upright faces (but not on inverted faces nor on shoes, a control material) compared to literates, leading them to display no significant face inversion effect. They also displayed a general disadvantage (for both faces and the control material) when the task required analytic processing. These results will be discussed in the light of various theories proposed for the development of word-selective regions in ventral occipitotemporal cortex.

Contact: Kolinsky.Regine@ulb.be

Oral Communication
Thursday 11 April, 2024 11:45 to 12:00

The long causal pathway from an early neurodevelopmental deficit to an impaired cultural technique

Thomas Lachmann
University of Kaiserslautern-Landau

Developmental dyslexia is defined as the result of an early neurodevelopmental deficit that many years later results in an unexpected impairment in the acquisition of reading and writing skills and consequently in specific poor academic performance and possible secondary symptoms. Instead of being causally oriented, however, the diagnostic criteria relate almost exclusively to the skill performance. In addition, little attention is paid to the influence of cultural factors. We will introduce a multilevel framework that considers five levels of a causal pathway in which a specific genotype is expressed and transmitted hierarchically from one level to the next, under the increasing influence of individual learning-related characteristics and environmental factors that are strongly moderated by cultural conditions. These levels are the neurobiological level, the information processing level, the skill level (acquisition of a cultural technique), the academic performance level and the secondary effects level. At each level within the assumed causal pathway, there are risk and protective factors that can increase/decrease the likelihood of developmental dyslexia occurring. For example, there is a strong moderating effect of cultural influences on and between the information processing and the skill level: different writing systems and orthographies. These differences place culturally specific demands on reading and writing-specific cognitive processes and influence both literacy acquisition and the manifestation of developmental dyslexia.

Contact: lachmann@rhrk.uni-kl.de

Oral Communication
Thursday 11 April, 2024 12:00 to 12:15

Still lost in the mirror but only for nonreversible letters! Masked priming effects during visual word recognition by dyslexic college students

Tânia Fernandes, Mariona Pascual, and Susana Araújo
Faculty of Psychology, Universidade de Lisboa

Mirrored errors of reversible letters (e.g., d for b) are common in beginning readers and seem to linger in those with developmental dyslexia due to mirror invariance, an evolutionary-old perceptual tendency of processing mirror images as equivalent. We previously showed that fluent adult readers do not show any sign of mirror invariance during orthographic processing, but the development of automatic mirror-image discrimination is protracted; it is only by the 6th-grade that typical readers no longer show mirror invariance when processing nonreversible letters (e.g., f or t). In this study, we investigated whether dyslexic adults with massive exposure to the written code still show difficulties in mirror- image discrimination during orthographic processing. Dyslexic and neurotypical college students performed a masked priming lexical decision task with letter type (reversible, nonreversible) and prime (control; identity; mirrored; rotated) orthogonally manipulated. Typical readers showed a significant identity priming effect and mirror and rotation costs, that is, slower word recognition (e.g., IDEA) after a mirrored or rotated prime (e.g., ibea or ipea, respectively) than an identity prime (e.g., idea) for both letter types. Dyslexics behave as controls for reversible letters but still showed mirror invariance for nonreversible letters, suggesting that their letter representations might lack robustness.

Contact: tpfernandes@psicologia.ulisboa.pt

Oral Communication
Thursday 11 April, 2024 12:15 to 12:30

Should science address non-scientific internet hypes? The case of Bionic Reading

Joshua Snell
Vrije Universiteit Amsterdam

It has recently been claimed that presenting text with the first half of each word printed in bold (**a**s **i**s **do**ne **i**n **th**is **exa**mple), so-called Bionic Reading, facilitates reading. However, empirical tests of this claim are lacking, and theoretically one might expect a cost rather than a benefit. Here I tested participants' reading speed of 100 paragraphs that were presented either in 'Bionic' or in normal font. Statistical analyses revealed no significant difference in reading times between Bionic and normal reading. I conclude that Bionic Reading does not facilitate reading.

Contact: j.j.snell@vu.nl

Oral Communication
Thursday 11 April, 2024 12:30 to 12:45

Examining the electrophysiological signature of inter-letter spacing on visual word recognition: An ERP study

Teresa Civera, Marta Vergara-Martínez, and Manuel Perea
Universitat de València

Previous behavioral studies have shown that inter-letter spacing is a perceptual factor that affects visual word recognition and reading. While condensed spacing may hinder the early stages of letter encoding by enhancing crowding effects, expanded inter-letter spacing would instead improve letter encoding relative to the default spacing. To examine the electrophysiological signature of inter-letter spacing on visual word recognition, we designed an Event-Related Potentials (ERPs) go/no-go semantic categorization task (120 [no-go] non- animal words and 18 [go] animal words), in which the focus was on "no-go" responses. Words were presented with three different inter-letter spacings: standard (0), condensed (-1.5 points), or expanded (+1.5 points). We were interested in a key ERP component, the N170, sensitive to crowding effects and associated with the early encoding of orthographic information. If inter-letter spacing affects, via crowding effects, the early encoding of letters within words, we expect a linear relation between inter-letter spacing and N170 amplitude (N170 negative voltage values: condensed > standard > expanded). The ERP results showed that condensed spacing elicited higher negative voltage values than both the standard and expanded spacing conditions in the N170 component (150 - 200 ms post-stimulus; occipital), thus confirming the difficulty of orthographic processing with increased crowding.

Contact: Teresa.Civera@uv.es

Oral Communication
Thursday 11 April, 2024 12:45 to 13:00

Reading in the rain: do we care about the weather?

Jon Andoni Duñabeitia
Universidad Nebrija

A series of studies synthesizes are presented at the intersection of environmental psychology, psycholinguistics, and cognitive science, focusing on the impact of simulated weather conditions in a Virtual Reality (VR) setting on human cognition and emotional perception. The studies explore how different weather simulations (sunny and rainy) influence the emotional valence perceived in linguistic stimuli and reading dynamics. The results indicate that while wet weather delayed reactions, it did not alter the emotional perception of word valence. However, sunny conditions significantly enhanced single-word recognition speed and overall reading times, highlighting the profound effect of environmental visual conditions. In contrast, rainy scenarios increased eye fixations during sentence reading, with minimal impact from visual contrast. These findings reveal a complex relationship between environmental factors and cognitive activities, emphasizing the importance of environmental variables in language processing, cognition, and emotion. The study not only demonstrates VR's potential in providing controlled yet ecologically valid research settings but also offers crucial insights for the ergonomic design of reading materials in both outdoor and virtual environments.

Contact: jdunabeitia@nebrija.es

Oral Communication
Thursday 11 April, 2024 13:00 to 13:15

The impact of cognitive science on road safety practices

Jose L. Tapia and Jon Andoni Duñabeitia
Centro de Investigación Nebrija en Cognición (CINC), Universidad Nebrija

Road safety constitutes a complex, multifaceted challenge, necessitating the adoption of innovative methodologies that extend beyond conventional paradigms. This investigation addresses this exigency through in-depth analysis, identifying critical cognitive skills that substantially influence safe driving, particularly in adverse conditions. Transcending constraints of prior programs, the present study developed and executed an eight-week, comprehensive, multidomain computerized cognitive training regimen. This regimen was meticulously crafted to enhance these specific cognitive abilities in a cohort of young drivers (n=50). The efficacy of this intervention was appraised through the deployment of a high-fidelity driving simulator, yielding a noteworthy diminution in the incidence of traffic infractions subsequent to the training. This integrative and extensive approach not only evidences the efficacy of holistic cognitive skill augmentation in bolstering driving competence but also underscores the imperative for such encompassing training within the ambit of contemporary road safety initiatives. The empirical findings of this study robustly advocate for the integration of diverse cognitive assessments and training protocols within the frameworks of road safety education and driver licensure processes. Such integration is anticipated to cultivate a proactive culture of road safety, firmly entrenched in the principles of cognitive well-being and the proactive thwarting of vehicular accidents.

Contact: jtapia@nebrija.es

Oral Communication
Friday 12 April, 2024 11:00 to 11:15

Dynamics of phonetic-level language control in language switching with a letter-naming paradigm

Feng Ji [1], Yong Zhang [2], and Markus Damian [1]
[1] School of Psychological Sciences, University of Bristol, United Kingdom
[2] College of Foreign Languages, Chongqing Medical University, Chongqing, China

How bilinguals control multiple languages is the object of intense recent scientific debate. Empirical research on language control at various linguistic levels has remained scarce, with language control at the phonetic level particularly underexplored. In the present study, Chinese-English-German speakers named the letter of the alphabet in English (L2) or German (L3), either in single-language blocks or in alternate-language mixed blocks. Letters vary regarding how phonetically similar pronunciation is across the two languages, hence allowing to explore cross-language phonetic influences. Results showed substantial mix and switch costs as well as a "reversed language dominance" effect, suggesting inhibitory control in response to cross-language phonetic interference. Cross-language facilitation was observed for phonetically similar letters, and mixing/switch costs were modulated by phonetic similarity in a complex pattern. The evidence for cross-language phonetic similarity effects at local and global levels of inhibitory control implies a dynamic interaction between the two phonetic systems.

Contact: te22255@bristol.ac.uk

Oral Communication

Friday 12 April, 2024 11:15 to 11:30

Language switch costs in sentence comprehension between Chinese and English: Evidence from self-paced reading

Mengyan Zhu [1], Markus Damian [1], and Patrick Sturt [2]

[1] School of Psychological Science, University of Bristol

[2] School of Philosophy, Psychology and Language Sciences, University of Edinburgh

While language switching has been extensively investigated, the majority of studies have focused on language production, leaving uncertainty regarding the existence and nature of language switch costs in comprehension. This study explored intrasentential switching between Chinese and English employing a self-paced reading paradigm. The investigation additionally explores whether English (L2) proficiency influences switch costs. Key findings revealed that switch costs were evident only when switching into L1 (Chinese) but not when switching into L2 where facilitation was observed. This implies that switching into L1 from L2 incurs difficulties in activating the L1 lexicon, while the reverse facilitates comprehension. Although L2 proficiency did not directly modulate switch costs, it impacted reading speed for English material. The study's results suggest the involvement of an inhibitory control mechanism in language processing, implying that switch costs stem from a general cognitive control mechanism rather than exclusive processing within the bilingual mental lexicon. The inhibitory process in comprehension is discussed, and the importance of cross-script studies in understanding language switching is emphasized.

Contact: Mengyan.Zhu@bristol.ac.uk

Oral Communication
Friday 12 April, 2024 11:30 to 11:45

Harmony in sight or how vowel harmony modulates visual word recognition: Evidence from Turkish

Zeynep G. Özkan [1], Berceste Özdemir [1,2], Pablo Gómez [3], Manuel Perea [1]

[1] Universitat de València

[2] Üsküdar University

[3] Skidmore College

Vowel harmony, a phonological phenomenon in which the vowels in a word keep some features (e.g., frontness vs. backness) in several families of languages (e.g., Turkic and Finno-Ugric languages), serves as an effective segmenting cue in continuous speech and when reading compound words. The present study examined whether vowel harmony also plays a role in visual word recognition. We chose Turkish, a language with four front vowels and four back vowels in which approximately 75% of words are harmonious—containing either front or back vowels. If vowel harmony contributes to the formation of coherent phonological codes, harmonious words will reach a stable orthographic-phonological state more rapidly than disharmonious words. To test this hypothesis, in Experiment 1, we selected two types of monomorphemic Turkish words: harmonious (containing only front vowels or back vowels) and disharmonious (containing front and back vowels). Results showed faster lexical decisions for harmonious than disharmonious words, whereas vowel harmony did not affect the response to the pseudowords. In Experiment 2, where all words were harmonious, we found a minimal advantage for disharmonious than harmonious pseudowords. These findings suggest that vowel harmony helps the formation of stable phonological codes in Turkish words, but it does not play a key role in pseudoword rejection.

Contact: zeynep.ozkan@uv.es

Oral Communication
Friday 12 April, 2024 11:45 to 12:00

Cultural Sensitivity in Bilingualism Assessment:
Introduction of the Perceptions of Puerto Rican Bilingualism Scale

Samantha Velo
University of Puerto Rico

The debate surrounding the cognitive advantages of bilingualism remains inconclusive. Existing research lacks integration of cultural, identity, and political factors specific to colonized lands. This study addresses this gap by introducing the Perceptions of Puerto Rican Bilingualism Scale (PBP), a culturally tailored assessment grounded in Baker's dimensions of bilingualism using a 1-to-4-point Likert Scale. The PBP underwent evaluation for internal validity, employing Lawshe's Content Validity Ratio (CVR) with input from a panel of six experts. Subsequently, the scale was administered to a non-probabilistic sample of 272 students, undergraduate (73.2%) and graduate (26.8%), out of which approximately 50% had been exposed to English language arts by the age of 9. Participants used English in various social contexts (M=2.86, SD=0.58) and engaged well in different linguistic abilities in English (M=3.2, SD=0.55). They demonstrated a balanced use of Spanish and English (M=2.97, SD=0.77). When asked about feeling obligated to learn English, the average response was 2.57 (SD=0.53). Participants were generally open-minded about the integration of English into Puerto Rican culture, with an average score of 3.01 (SD=0.24). The findings underscore the need for culturally specific psycholinguistic assessments and suggest venturing beyond academic settings for diverse sampling in the development of comprehensive bilingualism models.

Contact: samantha.velo@upr.edu

Oral Communication
Friday 12 April, 2024 12:00 to 12:15

The mind's mystery

José Morais
Université Libre de Bruxelles

I will discuss the differences in two related concepts, "Mind" and "mental", among a sample of well-known philosophers and cognitive psychologists or scientists (e.g., Ryle, Searle, Jaynes, Simon, Vygotsky, Godfrey-Smith), since the 19th century. I will also discuss the mind-brain identity theory and will argue for the idea that having mental processes does not imply the existence of a mind (I will explain why I support the last claim) and will refer some authors who have not used or almost never the concept of "mind". Concerning these conceptual issues, It is important to recognize that: (1) the scientific and philosophical stances cannot be completely separated as they need each other; (2) nor the mind-body and the mind-brain, for the precious reason that the brain, mind and body act and make links in vaster and more complex contexts, and (3) body – brain – mind should be viewed as being all three permanently connected and cannot be completely understandable if looked as pairs or individually. Finally, I will argue for the following ideas: that "mind" is not a scientific concept and has always been philosophical; and that cognitive psychology gave it erroneously a paramount role in connection with brain and body.

Contact: Jose.Junca.De.Morais@ulb.be

Oral Communication
Friday 12 April, 2024 15:30 to 15:45

Lower sampling rates may be the key to closing the eye-movement gap in reading research

Bernhard Angele [1], Zeynep G. Özkan [2], Marina Serrano-Carot [1], and Jon Andoni Duñabeitia [1]
[1] Universidad Nebrija
[2] Universitat de València

Eye-movement research has revolutionized our understanding of reading, but the use of eye-tracking techniques is still limited to only a few countries in the world. Publication statistics from the last 25 years show that most publications on eye-movements during reading have authors based in Western countries. We argue that eye-tracking is the ideal technique for reading and language research in countries with limited resources, and that it is crucially important to not just study a small subset of languages, but that more needs to be done to make eye-tracking technology accessible for researchers in those countries. This includes evaluating to what extent cognitive processes during reading can be measured with less expensive eye-tracking devices. One such way may be to use devices with a lower sampling rate, which may be much less expensive than high-sampling rate eye-trackers. We present findings from a study that recorded readers' eye movements during reading at different sampling rates. We show that it is possible to measure the classic effect of word frequency on fixation duration, reflecting ongoing processing during reading, even at sampling rates of 250 Hz and less.

Contact: bangele1@nebrija.es

Oral Communication
Friday 12 April, 2024 15:45 to 16:00

Humans make materials that make humans. The XSCAPE project on Material Minds.

Jaime Almansa Sanchez [1], Felipe Criado-Boado [1], and Luis M. Martinez [2]
[1] Instituto de las Ciencias del Patrimonio INCIPIT, CSIC
[2] Instituto de Neurociencias de Alicante, CSIC-UMH

The premise of the XSCAPE Project on Material Minds (ERC-2020-SyG 951631) is that materiality (including artefacts, but also constructions or landscapes), and humans' active engagement with them, alters and transforms thinking and patterns of attention. The project sheds new light on the ways in which materiality affects cognition and on the different time scales and historical and social conditions in which this occurs. This claim requires experimental demonstration by rigorous analysis (eye-tracking techniques in controlled environments, combined with other methodologies). Our aim is to test this and 'close the loop' by showing that material culture does not simply reflect, but actively alters modes of thinking, attending, and reasoning. The alternative view we apply proposes an ordered means of linking perception, attention and behaviour with cognitive change and learning. Preliminary results strengthen our confidence to confirm this hypothesis, and with this contribution we intend to share them and to introduce our new laboratory and methodologies.

Contact: jaime.almansa-sanchez@incipit.csic.es

Oral Communication
Friday 12 April, 2024 16:00 to 16:15

Comparison of VR/Mobile Goal-Oriented Games and ACE-III for Cognitive Assessment: A Pilot Study

Veeky Baths
Birla Institute of Technology and Science (BITS) Pilani, Goa Campus

The current medical and clinical ecosystem for dementia detection is inadequate for its early detection. Current cognitive assessments tools are introduced only after the cognitive impairment has begun to disrupt the real-world functioning of the person. Moreover, these tools are paper-pen based and fail to replicate the real-world situations wherein the person ultimately lives, acts and grows. The lack of tools for early detection of dementia, combined with absence of reliable pharmacological cure compound the problems associated with dementia diagnosis and care. Given this background, we examine the potential of Virtual Reality and Mobile-based goal-oriented games for cognitive assessment. We evaluate three games (2 in VR, one in mobile) on 18-28 years old participants and compare and contrast the game-based results with their Addenbrooke Cognitive Examination (ACE-III) results. The graphical, exploratory, statistical, and correlation analysis reveal the short-comings of ACE-III in the context of practical cognitive assessment and affirm to the plausibility of using goal-oriented games for more granular, time-based, and real-world relevant cognitive assessment. More clinical research among elderly and mild-cognitive impairment patients is required to translate these games for cognitive assessment.

Contact: veeky@goa.bits-pilani.ac.in

Oral Communication
Friday 12 April, 2024 16:15 to 16:30

The Invisible Threat: Incidental Processing and the Confusability of Logos

Francisco Rocabado [1], Manuel Perea [1,2], and Jon Andoni Duñabeitia [1,3]
[1] Nebrija University
[2] Universitat de València
[3] The Arctic University of Norway

Brand names are integral and distinctive assets of a company, often presented with unique graphical designs. Recent studies have highlighted how the uniqueness of these designs makes them susceptible to counterfeiting through misspellings. For instance, the transposed-letter misspelling “amzaon” tends to be categorized as a genuine brand name in lexical decision experiments, especially when embedded in its original logo design. However, little is known about the incidental processing of logos. To address this gap, we used original and transposed-letter logotypes in a highly immersive virtual reality (VR) setting. Participants were incidentally exposed to logos, after which we assessed their accuracy in recognizing correctly spelled versus transposed-letter misspelled logos. Our findings showed a higher accuracy rate for correctly presented brand names compared to their misspelled counterparts. Furthermore, misspelled logos were often recalled as being correctly spelled (i.e., a false memory effect). Taken together, these findings reveal the challenges in distinguishing between misspelled and original logos, highlighting the vulnerability of logos to fraudulent practices via misspellings.

Contact: jrocabado@nebrija.es

Oral Communication
Saturday 13 April, 2024 10:30 to 10:45

Case matters: The effect of letter-case in brand names during sentence reading

Melanie Labusch and Manuel Perea
Universitat de València

Brand names and their logos are integral products of our cultural development. A unique feature of brand names is that they typically maintain a consistent letter case in their presentation (e.g., IKEA, adidas). This consistency suggests that the mental representation of brand names conveys information about letter case—together with other surface elements (e.g., font, color). To examine this issue, we conducted an eye-tracking experiment where participants read sentences with 100 well-known brand names. Each brand was presented in its original letter case (e.g., IKEA, adidas) or a modified letter case (e.g., ikea, ADIDAS). We measured the fixation times on these brand names as a marker of lexico-semantic access. Results showed longer fixation times on brand names when the letter case was altered, especially for brand names typically presented in lowercase (e.g., ADIDAS produced longer fixation times than adidas, but this pattern did not occur for IKEA vs. ikea). This outcome reveals that the consistency of letter case presentation plays a key role in the identification of brand names, even when presented in a reading context. These findings challenge the generality of abstractionist letter-based models of visual word recognition.

Contact: melanie.labusch@uv.es

Oral Communication

Saturday 13 April, 2024 10:45 to 11:00

With or without you? The role of diacritical vowels when reading European Portuguese words

Montserrat Comesaña [1], Ana Costa [1], Ana Rita Sá-Leite [2], María Fernández-López [3], and Manuel Perea [3]

[1] Universidade do Minho

[2] Universidade de Santiago de Compostela

[3] Universitat de València

Most Latin-based orthographies feature vowels with diacritical marks. A key theoretical question is whether these marks are an integral part of the mental representation of words. Recent research suggests that the impact of diacritics depends on their function. In Spanish, a language in which vowel diacritics primarily indicate lexical stress under certain norms, their omission incurs very little cost. In contrast, in German, where diacritics signify a different vowel sound, omitting them results in a reading cost (see Labusch et al., 2023; Perea et al., 2022). The present study examines the issue with native speakers of European Portuguese, a language where the function of diacritics is more complex than in Spanish and German: they may signal lexical stress, vowel quality, and syllable structure. We conducted two experiments: a semantic categorization task and a go/no-go lexical decision task in which words, all originally containing a diacritical vowel, were presented either intact or without the diacritic. Results showed that lexical access was delayed in the absence of diacritics, suggesting that diacritical marks are an integral part of the mental lexicon of Portuguese readers.

Contact: mvila@psi.uminho.pt

Oral Communication
Saturday 13 April, 2024 11:00 to 11:15

Spaces or colors? The role of marking word boundaries in reading aloud in Javanese

Xiaoyun Wang [1], Hermiyanti Tri Halisiana [1], and Manuel Perea [2]
[1] Zhejiang Gongshang University
[2] Universitat de València

Prior studies, particularly focusing on Chinese—a logographic unspaced writing system—have revealed that reading can be facilitated by inserting spaces (Bai et al., 2008) or coloring alternate words (Perea & Wang, 2017), especially for novice readers. This study examines whether these visual cues—spacing and coloring—also aid reading in Javanese, an alpha-syllabic unspaced script used in some regions of Indonesia. We conducted five experiments with developing and adult Javanese readers, all of whom were familiar with Indonesian (employing the Latin alphabet and interword spaces), to examine the impact of these word boundary markers on reading aloud text in Javanese. Experiments 1 and 2 tested the effect of interword spaces, while Experiments 3 and 4 focused on the role of alternating- word coloring. Experiment 5 directly compared the effectiveness of both cues in adult readers. The results indicate that spacing consistently aided both developing and adult Javanese readers, whereas coloring only facilitated reading aloud for developing readers. These findings suggest that the alpha-syllabic nature of Javanese, coupled with the participants' familiarity with Indonesian, makes interword spaces a more effective visual cue for word segmentation than coloring.

Contact: 13777492423@163.com

Oral Communication
Saturday 13 April, 2024 11:15 to 11:30

Everyday touch typists: incidental expertise in typing

Svetlana Pinet
Basque Center on Cognition, Brain, and Language

In less than 150 years, keyboards have been widely adopted as a text-input tool. As the share of written communications through keyboards is increasing in our daily life, studying everyday typists, a population constantly evolving due to technological developments, is becoming more and more relevant. In this study we propose to quantify typing expertise in self-taught typists according to the ability to type without visual guidance from the keyboard. We present results of two experiments using a blind typing task and show that it allows dissociating two profiles of typists, touch and non-touch typists. In Experiment 1, we report an analysis of more than 100 typists and show that performance in blind typing correlates with faster typing speed of lexical and non-lexical material, but not with low-level motoric skills. In Experiment 2, we show that touch and non-touch typists present differences in both written and spoken language production, but not language perception. These results demonstrate that the characterization of "everyday touch typists" not only discriminates typing skills but may also capture distinct cognitive abilities brought about by technological development.

Contact: s.pinet@bcbl.eu

Oral Communication

Saturday 13 April, 2024 11:30 to 11:45

The impact of typing and handwriting experience in children´s letter and word learning: Implications for literacy development

Gorka Ibaibarriaga [1], Joana Acha [1], and Manuel Perea [2]

[1] Universidad del País Vasco UPV/EHU

[2] Universitat de València

Recent research has revealed that the substitution of handwriting practice for typing may hinder reading development. Two hypotheses for this deleterious effect are (1) reduced graphomotor activity and (2) lower letter production variability. The present experiment tested these accounts by manipulating orthogonally graphomotor action and output variability. Additionally, although learning orthographic word-structures are essential for reading development, prior studies only focused on letter learning. To address these issues, 50 pre-readers learned nine symbols (first learning phase) and 16 words made up of these symbols (second learning phase) across four learning conditions: copying the artificial letters/words by hand, tracing the artificial letters/words, typing the letters/words on a computer with several fonts, and typing with a single font. Post-test tasks included naming, writing, and visual identification of the trained letters and words. Results showed that children in both graphomotor conditions (handwriting and tracing) showed greater learning rates than children in both typing conditions, regardless variability. These findings illustrate the dramatic impact of handwriting experience on learning alphabetic and orthographic representations, favoring the graphomotor hypothesis. Given the significant impact of handwriting on literacy development, educators should be cautious about replacing pencil and paper with digital devices in children´s reading acquisition period.

Contact: gorka.ibaibarriaga@ehu.eus

Abstracts (Posters)

Poster

Thursday 11 April, 2024 16:00 to 17:00

Is the vertex effect modulated by context when naming words?

Laura Mealha, Rita Pires, and Tânia Fernandes
Universidade de Lisboa

Contour deletion impairs visual word recognition due to signal impoverishment, but vertices (i.e., line junctions) seem to be especially relevant: word naming is less impaired when vertices rather than midsegments are preserved. To enlighten the locus of this vertex effect, we manipulated contour (100%, 65%, 45%) and type of segment (vertex vs. midsegment) preserved of words and nonwords presented in two naming contexts (between- participants): homogenous (by lexicality) or mixed (comprising words and nonwords). In both contexts, the vertex effect was modulated by lexicality: it was larger for words than nonwords (in errors and reaction times), albeit reliable for both in 45% contour. In 65% contour, a reliable vertex effect was found only for words (mostly on errors). These results suggest that the vertex effect is not influenced by post-orthographic phonological/articulatory processes. It neither seems to happen at an early stage of orthographic processing, given the modulatory role of lexicality.

Contact: laura.mealha98@gmail.com

Poster

Thursday 11 April, 2024 16:00 to 17:00

Single letters are objects of perceptual expertise:
Insights from electroencephalography and multivariate pattern analysis

Miguel Domingues, Susana Araújo, Tânia Fernandes, and Inês Bramão
Universidade de Lisboa

Reading is an ecological form of perceptual expertise, whose primitive are letters. Thus, differences in processing of single letters relative to visually matched non-letters (false- fonts) are found in the N1 (N170) Event-Related Potential (ERP). However, sensitivity to the orthographic status of letters relative to other symbols is not limited to early stages, as shown by differences in later ERPs: the parietal P2 (200-300 ms) and the central-parietal P3 (300- 500 ms). The mechanisms underlying these differences are still unclear: either letter-specific processing is not purely perceptual, and relies on later independent cognitive processes, such as attention or high-level knowledge, or perceptual processing of single letters spreads and remains preponderant. To examine the temporal dynamics of single letter processing, we used time-resolved Multivariate Pattern Analysis (MVPA) in the EEG data of typical adults (N = 34), during a one-back task on letters and false-fonts. Differences between categories were found in the N1, P2, and P3 ERPs. Time generalization analyses showed that brain patterns associated with early stages of letter processing (140 – 180 ms) re-emerged at later time- windows (190 – 600 ms). These results suggest that single letter processing is characterized by a cascade of information mostly dependent on earlier perceptual stages.

Contact: migueldomingues_96@hotmail.com

Poster

Thursday 11 April, 2024 16:00 to 17:00

Weathering Word Recognition: Investigating the impact of sunny and rainy virtual environments on lexical processing

Laís Muntini [1,2], Francisco Rocabado [2], Jorge González Alonso [2], and Jon Andoni Duñabeitia [2]

[1] University of Kaiserslautern-Landau

[2] Universidad Nebrija

The environment provides a constant flow of sensory input, affecting the perception and process of information. Variability of stimuli combined with perceptual distractors like audio-visual noise modulate the ability to focus and perform on specific cognitive tasks. Controlling natural phenomena, such as weather patterns, ambient lighting, or spatial configurations can present significant challenges to researchers seeking to isolate specific variables for systematic investigation, making some experiments impractical or downright unfeasible. Hence, traditional research in experimental psychology has usually been conducted in minimalistic, lab-controlled environments at the cost of ecological validity: it is difficult to claim with some certainty that the processes captured under strictly controlled conditions reflect with accuracy those that take place "in the wild". In a convenient form of compromise, the synthetic recreation of environments with Virtual Reality (VR) has engendered a paradigm shift in experimental methodologies, affording investigators the ability to mimic and modulate real-world environmental conditions with unprecedented precision, through the generation of realistic but highly controlled experimental scenarios. We present evidence on visual contrast and weather disturbances on word recognition speed and error rates using this technique, endorsing virtual immersion as a way to bring laboratory conditions closer to ecological validity.

Contact: muntini@rhrk.uni-kl.de

Poster

Thursday 11 April, 2024 16:00 to 17:00

The Interplay of Gaze and Speech Perception in Audiovisual Content in L1 and L2

Inka Romero-Ortells [1], Manuel Perea [1,2], and Jon Andoni Duñabeitia [1]

[1] Universidad Nebrija

[2] Universitat de València

Gaze dynamics during speech perception are challenging in multilingual environments due to the interplay of language processing mechanisms and the integration of visual cues. Specifically, the speaker's eyes and mouth play a crucial role in speech comprehension (e.g., showing longer fixation times on the mouth than on the eyes in scenarios with difficult intelligibility). This highlights the importance of visual cues in understanding speech, particularly in scenarios where auditory information may be compromised or, as in the current study, in the context of L2 learners. Experiment 1 examined the differences in gaze behavior in original versus dubbed videos between L2 learners and native speakers. Results showed that participants in the dubbed videos spent more time fixating on the speaker's eyes—this difference was not observed in L2 videos. Experiment 2 examined how simultaneous audio and written speech (subtitles) influence gaze behavior in L2 videos. Participants spent more time looking at the subtitles than at the speaker's eyes or mouth, especially for non-advanced L2 learners; however, advanced L2 learners showed similar fixation times looking at the subtitles and the speaker's eyes. These findings indicate that the multiple sources of information and L2 reading ability interact in diverse linguistic and audiovisual contexts.

Contact: iromeroortells@nebrija.es

Poster

Thursday 11 April, 2024 16:00 to 17:00

Two Bilingual Populations Are Influenced by Masked Translation Priming

Camille Scrimshire [1], Sara Alicia Amador [1], Andrea González-García Aldariz [1], and Pablo Gómez [1,2]

[1] California State University, San Bernardino

[2] Skidmore College

This research addresses the phenomenon of masked priming and the cognitive process of switching from Spanish to English while reading in sequential bilingual texts compared to heritage speakers. A lexical decision task was employed in this study with masked translation priming, which serves as a valuable tool for elucidating the orthographic and lexical processes involved in the initial stages of reading. This study builds upon previous research conducted on monolingual masked priming, which consistently demonstrates shifts in the response time (RT) distributions when comparing related and unrelated primes. Within the framework of a diffusion model, we implemented two theoretical positions. First, we posited that translation priming operates at the orthographic level, resulting in enhanced efficiency during the encoding process. Second, we explored the possibility that translation priming operates at the semantic level, influencing the accumulation of evidence during the lexical decision task. The findings indicate that translation priming elicits outcomes similar to those observed in monolingual priming paradigms. We observed that translation priming facilitation is manifested as shifts in the RT distributions. These findings are interpreted to suggest that the benefits derived from the encoding process are not specific to the accessed lexicon following a brief stimulus presentation.

Contact: maudeoff@aim.com

Poster

Thursday 11 April, 2024 16:00 to 17:00

An Experimental Method to Induce Tailwind/Headwind Asymmetries

Pablo Gómez, Kaitlin Reif, Lucy Altman-Coe, Lila Glanville, and Allison Faulds
CSUSB, Skidmore College

In our day-to-day lives, people encounter both negative and positive circumstances. Some of these are positive, facilitating our accomplishments, while others are negative, serving as obstacles. We refer to these experiences as headwinds and tailwinds. We conceive of headwinds as negative factors, such as obstacles impeding growth or advancement, whereas tailwinds are the opposite; they are opportunities or blessings, accelerating individuals in positive directions. Davidai and Gilovich (2016) have found that people tend to overestimate their hardships or headwinds relative to those around them. They observed that, for example, individuals often believe that their siblings enjoyed more leniency from their parents, or that academics feel that colleagues in other fields have an easier path to publication. Shai and Gilovich interpret this finding as an availability bias, meaning that memories of negative experiences (headwinds) are more salient and easily accessible. In the present work, we use a perceptual decision making task, and its accompanying modeling technology, to experimentally manipulate head and tail winds. This procedure will allow researchers to carry out cross-cultural research on this topic, and to explore how the head/tail wind asymmetry interacts with other cognitive and emotional factors such as memory load and stress.

Contact: pgomez@skidmore.edu

Poster

Thursday 11 April, 2024 16:00 to 17:00

Mind in Motion: Unveiling Organism Behavior Through Movement Tracking

Regina Zaghi-Lara [1], Luis M. Martínez [2], and Felipe Criado-Boado [1]

[1] Instituto de las Ciencias del Patrimonio INCIPIT

[2] Instituto de Neurociencias de Alicante CSIC-UMH

As part of the XSCAPE ERC Synergy Grant Project (ERC-2020-SyG 951631), the Material Minds Lab researches the intricate relationship between human interaction with materials and the environment and its profound impact on our perception of the world. Through diverse methodologies, we explore how ancient societies organized themselves based on the materials they crafted, and how our cognition is intertwined with these artifacts. Movement analysis in the natural sciences emerges as a crucial avenue for understanding organism behavior, offering insights into how our interactions with the environment shape cognitive processes. While using deep learning techniques and non-intrusive tracking of movement, we describe underlying patterns, styles, and typologies in our interactions and navigation within our surroundings. We, therefore, gain valuable insights into the underlying cognitive mechanisms that govern human behavior and societies.

Contact: regina.zaghi-lara@incipit.csic.es

Poster

Thursday 11 April, 2024 16:00 to 17:00

The integration of generative language AI in simulated learning environments

Jose L. Tapia [1], Francisco Rocabado [1], Ana Sanz Cortés [2], Eva García-Carpintero Blas [2], M. Lorena Pedrajas [2]

[1] Nebrija Research Center in Cognition (CINC), Nebrija University

[2] School of Life and Nature Sciences, Nebrija University

The integration of AI-based generative language models into education marks a revolutionary advancement with broad societal implications. These models not only enhance teaching methods by making them more interactive and efficient but also hold significant potential for societal progress. This study explores the use of AI learning assistants in clinical simulation, focusing on enriching educational experiences in diagnostic and communication skills. The aim is to improve clinical simulation, providing students with an interactive and realistic platform, and assessing the impact of these tools on their self-efficacy and confidence. Simulated scenarios were implemented where students interact with AI in standardized patient roles. The project developed across various phases, including the adaptation of AI to different psychopathological profiles, pilot testing, and classroom implementation. Evaluation methods included self-efficacy questionnaires and analysis of student learning experiences. Moreover, students' emotional experiences interacting with AI were examined. Preliminary results indicate a decrease in student anxiety and an increase in confidence in simulated clinical situations. The study highlights the value of generative language models in clinical training and health education, offering new perspectives for future implementations that address both the emotional challenges and pedagogical opportunities of this emerging technology.

Contact: jtapia@nebrija.es

Poster

Thursday 11 April, 2024 16:00 to 17:00

Critical thinking dispositions, media literacy and basic human values as predictors of the trust in public institutions in Serbia during the COVID-19 crisis – preliminary data analyses

Aleksandar Bulajic [1.2]

[1] University of Belgrade, Serbia

[2] PTU Kaiserslautern Landau, Germany

During COVID-19 pandemic, numerous studies have focused on investigating how various social and cultural factors relate to attitudinal/behavioural compliance with preventive/protective measures proposed by relevant social agents and institutions. Among these factors, trust/confidence in public institutions, e.g. health organizations and governing bodies have been identified as one of the most important However, limited information is available about which social and culture factors are the most significant correlates of this trust. Our study was conducted immediately after the pandemic with the aim of gaining insight into the post hoc reflections of the population in Serbia on their COVID-19 experiences with public institutions. We explored the predictive value of three factors regarding public institution trust (PIT): critical thinking dispositions (CTD), media literacy, and basic human values, while controlling for general trust and perceived risk/vulnerability to COVID-19. We hypothesized that besides cognitive factors such as CTD's dimensions of reflective skepticism and critical openness, media literacy level and individual's composition of basic human values e.g hedonism, stimulation, self-direction, benevolence, tradition, conformity, and security, were also the crucial factors of readiness to engage critically the media sources and information flow in the context of PIT during the pandemic.

Contact: aleksandar.bulajic@sowi.uni-kl.de

Poster

Thursday 11 April, 2024 16:00 to 17:00

The organization of semantic associations between senses in language

Jorge Andrés Alvarado Valencia [1], Carlos Velasco [2], Alejandro Salgado-Montejo [3]

[1] Pontificia Universidad Javeriana

[2] BI Norwegian Business School

[3] Atrianna

Distributional semantic representations were used to investigate the emergence of crossmodal correspondences within language, offering a comprehensive analysis of how sensory experiences interconnect in linguistic constructs. By computing semantic proximity between words from different sensory modalities, a crossmodal semantic network was constructed, providing a panoramic view of crossmodal correspondences in the English language (from Google News dataset). Community detection techniques were applied to unveil domains of experience where crossmodal correspondences were likely to manifest, while also considering the role of affective dimensions in shaping these domains. The study revealed the existence of an architecture of structured domains of experience in language, whereby crossmodal correspondences are deeply embedded. The present research highlights the roles of emotion and statistical associations in the organization of sensory concepts across modalities. The domains identified, included food, the body, the physical world and emotions/values, underscored the intricate interplay between the senses, emotion and semantic patterns. These findings align with the embodied lexicon hypothesis and the semantic coding hypothesis, emphasizing the capacity of language to capture and reflect crossmodal correspondences' emotional and perceptual subtleties, while also revealing opportunities for further perceptual research on crossmodal correspondences and multisensory integration.

Contact: jorge.alvarado@javeriana.edu.co

Poster

Thursday 11 April, 2024 16:00 to 17:00

Gender Agreement and the Parafoveal Processing of Definite Articles in Spanish

Marina Serrano-Carot and Bernhard Angele

Universidad Nebrija

This study investigates how Spanish native speakers utilize parafoveal information to guide eye movements during reading. Readers often skip short and common words, like the article "the" in English, even when encountering a preview of the word that conflicts with the preceding context. This implies that the oculomotor system prioritizes parafoveal information over contextual cues. However, this may not hold true when both the high-frequency word and the conflicting information are in the parafovea. In Spanish, there is mandatory gender agreement between articles and nouns. We manipulated the preview readers received of the article in article-noun phrases such that there either was agreement between the article and the noun (e.g. “la mesa”) or not (e.g. “el* mesa”). After readers crossed an invisible boundary at the left of the article the display changed to show the correct article. We find that readers do not take article-noun agreement into account when making the skipping decision; however, the mismatch affects fixation times on the noun and the subsequent word. This suggests that either parafoveal preprocessing before skipping exclusively involves the next word (the article) or parafoveal processing is very superficial and does not involve higher-level information as syntactic relationships between the upcoming words.

Contact: mserranc@nebrija.es