2023

17º ENCONTRO NACIONAL APPE

BOOK OF ABSTRACTS

31 MARÇO
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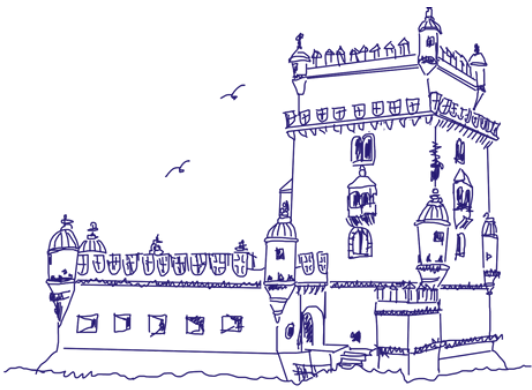
Faculdade Psicologia,
Universidade de Lisboa



17th ANNUAL MEETING APPE

Lisboa, Portugal

31 Março- 1 Abril

2023

BOOK OF ABSTRACTS

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Keynote speaker

Why time and rhythm matter in speech/language comprehension

Sonja A. Kotz

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The influence of time and rhythm in music is clearly recognized but there is less clear evidence on their impact in speech and language research (see Kotz & Schwartze, 2010). This is surprising as time and rhythm (i) play a significant role in speech and language learning, (ii) can compensate developmental and acquired speech and language disorders, and (iii) further our understanding of subcortical contributions to linguistic and non-linguistic functions. More specifically, recent neuroimaging and clinical evidence has confirmed the contributions of classical motor control areas (cerebellum (CE), basal ganglia (BG), supplementary motor area (SMA)) in timing, rhythm, music, and speech perception (Chen et al., 2008; Grahn et al., 2007; Geiser et al., 2009; Kotz t al., 2009; Kotz & Schwartze, 2011). We propose that serial order and temporal precision are shared mechanisms in simple and complex motor behavior (e.g., Salinas, 2009), but also in higher order cognitive functions such as speech and language (Kotz & Schwartze, 2010; 2015; 2016). I will present behavioral and neuroimaging evidence on the role of timing and rhythm in speech/language comprehension, and the compensation thereof in clinical populations. This empirical work will be discussed within a cortico-subcortical framework for speech/language processing.

APPE Award

Ad hoc categories and false memories: Memory illusions for categories created on-the-spot

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Three experiments were designed to test whether experimentally created ad hoc associative networks evoke false memories. We used the DRM (Deese, Roediger, McDermott) paradigm with lists of ad hoc categories composed of exemplars aggregated toward specific goals (e.g., going for a picnic) that do not share any consistent set of features. Experiment 1 revealed considerable levels of false recognitions of critical words from ad hoc categories. False recognitions occurred even when the lists were presented without an organizing theme (i.e., the category's label). Experiments 1 and 2 tested whether (a) the ease of identifying the categories' themes, and (b) the lists' backward associative strength could be driving the effect. List identifiability did not correlate with false recognition, and the effect remained even when backward associative strength was controlled for. Experiment 3 manipulated the distractor items in the recognition task to address the hypothesis that the salience of unrelated items could be facilitating the occurrence of the phenomenon. The effect remained when controlling for this source of facilitation. These results have implications for assumptions made by theories of false memories, namely the preexistence of associations in the activation-monitoring framework and the central role of gist extraction in fuzzy-trace theory, while providing evidence of the occurrence of false memories for more dynamic and context-dependent knowledge structures.

Keywords

False memory, ad hoc category, recognition, categorization, gist

Self-Generated Directed Forgetting

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The Internet is an amazing learning tool. The amount and diversity of useful information available over the Internet is staggering. Unfortunately, the same goes for erroneous for the availability of unreliable information. A student who wants to learn about a topic will have to, before committing a specific information to memory, go through an evaluation stage to check whether the information is reliable. If indeed the student deems it as unreliable, the student must forget it. To test for consequences of learning in noisy learning environments, we adapted the paradigm of directed forgetting. In two experiments, we asked participants to remember, forget and ignore words depending on whether the words belonged to certain ad hoc categories. In Experiment 1, the items 'to remember' were better remembered than the items 'to ignore' and 'to forget' – indiscriminately. But the use of very different ad hoc categories in the three cueing situations made their discrimination very easy and the type of elaboration required was very low. In Experiment 2, we used subcategories of the ad hoc category for the items “to remember” and “to forget” and a different category for the items 'to ignore'. This time, the items to “remember” were better recalled than the items to “forget” and the latter were significantly better remembered than those 'to ignore”, showing that the level of elaboration required at evaluation affects the efficacy of forgetting attempts. The results suggest that selective learning is harder in noisy learning environments like the Internet.

Keywords

memory and learning, directed forgetting, noisy learning environments

O papel da discussão livre na rejeição de desinformação

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A aceitação de desinformação está bem documentada em tarefas de memória individual – misinformation effect. Porém, apesar de a memória ser uma atividade social que opera através de interações sociais, os mecanismos cognitivos subjacentes à aceitação de desinformação em tarefas de memória colaborativa permanecem poucos explorados. Um dos fatores que parece influenciar a produção de falsas memórias em tarefas de memória colaborativa é o método de colaboração usado. O presente estudo teve como objetivo comparar o desempenho individual e dois métodos colaborativos – método turn-taking e free-for-all- na rejeição de desinformação. Recorrendo ao paradigma da desinformação, os participantes visualizavam um vídeo, ao qual se seguia uma tarefa de evocação livre individual. De seguida, os participantes respondiam a um questionário contendo informação correta e falsa acerca do vídeo, individualmente ou em colaboração (usando o método turn-taking ou o free-for-all; inter-participants). Após o questionário, os participantes realizavam uma nova tarefa de evocação livre individual. Os resultados revelaram que os participantes que colaboraram através do método free-for-all (vs. turn-taking e individual) produziram mais respostas corretas e aceitaram menos informação falsa como sendo verdadeira, durante a realização do questionário. Na tarefa de evocação individual final, os participantes que responderam ao questionário de forma colaborativa (free-for-all e turn-taking) recordam mais informação correta proveniente do mesmo (vs. individual). Criticamente, os participantes da condição free-for-all evocaram menos informação falsa proveniente do questionário do que os participantes das restantes condições. Estes resultados sugerem que as oportunidades de discussão oferecidas pelo método free-for-all têm potencial para minimizar a aceitação de desinformação.

Keywords

desinformação, interação social, discussão livre

False memory in a second language when controlling the knowledge of word meaning

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Research in experimental psychology has been widely interested in the study of false memories with the Deese/Roediger-McDermott (DRM) paradigm. Even though nowadays it is increasingly common for people to speak more than one language, to date, there is a scarcity of studies comparing false memories in the first and the second language (L1 and L2, respectively). Furthermore, it is noteworthy that one of the most studied variables in the DRM paradigm, the backward associative strength or BAS, has hardly been studied in the L2. Taking all this into account, the current work examined false memories in the L1 (i.e., Spanish) and the L2 (i.e., English) as a function of BAS overcoming some methodological limitations of the only previous study that, to our knowledge, has previously examined this matter. Based on Spanish and English free association norms, we selected 32 DRM lists that varied in their BAS values while controlling the knowledge of word meaning. In this experiment, 120 native-Spanish undergraduate students studied 10 DRM lists and, subsequently, performed a recognition test. Results showed that false recognition was greater in the L1 (dominant language) than in the L2 (non-dominant language). Furthermore, BAS modulated the false recognition in both L1 and L2. That is, false recognition was higher in high-BAS than low-BAS lists in both languages. Sensitivity index from the signal-detection theory helped us gain further insight into these results. The main findings are discussed in the light of theoretical models from both the false memory and the second language processing literature.

Keywords

false memory, DRM paradigm, associative strength, second language

Metamemory for (un)masked faces

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Using face masks to prevent the spread of respiratory infectious diseases has grown somewhat common in European countries since the COVID-19 pandemic. While it has been shown that people's recognition memory for faces may be hindered when the to-be-recognized person wears a mask, it is unclear whether people can predict how face masks affect recognition memory for faces. The present study aimed to test metamemory for masked and unmasked faces through people's judgments of learning (JOLs). Portuguese (Experiment 1a) and German (Experiment 1b) participants studied 48 faces (half masked, half unmasked) and made immediate JOLs for each. A distraction phase and a recognition task followed. Preliminary results revealed higher JOLs for unmasked faces than masked faces in both experiments. Then, we had German participants (Experiment follow a similar procedure in which they did, however, know whether each face would appear at test with or without a mask. Preliminary results revealed the highest JOLs for faces that were unmasked at study and test, lowest JOLs for faces that were masked at test regardless of whether they were studied with or without a mask, and intermediate JOLs for faces that were masked at study but unmasked at test. Recogniton memory performance revealed a similar pattern. Together, these preliminary findings suggest that people's JOLs for (un)masked faces are based on cues at the moment of encoding but consider the moment of future recognition; and that people are able to predict the effects of face masks on recognition memory for faces.

Keywords

metamemory, judgments of learning, faces, recognition memory, face mask

COVID-19 related effects on early language development

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Language includes auditory and visual cues relevant to language learning. With COVID-19 the use of face masks became pervasive, affecting the speech cues available to infants. Alongside mask use, COVID-19 led to other changes in everyday communication and interaction. We investigated the impact of mask use and COVID-related changes in early word segmentation and language development. Seventy-seven 7-9-month-old infants performed an auditory (AUD) and an audiovisual (AV) word segmentation experiment in two conditions: without and with a N95 face mask. Concurrent and later vocabulary outcomes measured with the CDI at 12, 15 and 18 months were collected. A comparison with segmentation data and CDI measures from pre-pandemic time was performed. Unlike in pre-pandemic studies, no evidence for segmentation was found in AUD. A similar result was obtained for AV, although the mask affected infants' looking patterns. Concurrent CDI measures did not differ from the CDI same age (pre-pandemic) normative data. However, later vocabulary outcomes at 12 months revealed that infants scored lower for expressive vocabulary than same age infants from the CDI (pre-pandemic) norming study ($p<.001$, $Z=-2.9$). At 15 and 18 months, infants scored lower both for receptive 5: $p=.02$, $Z=-2.24$; 18: $p=.01$, $Z=-2.55$) and expressive vocabulary 5: $p=.03$, $Z=-2.1$; 18: $p=.06$, $Z=-1.84$). Mixed-model analyses showed that despite improving between 8 and 18 months, vocabulary development has not yet converged by 18 months. Our results suggest an overall effect of the pandemic on early segmentation abilities and language development, with significant delay patterns that persist until 18 months of age.

Keywords

early word segmentation, audiovisual speech perception, lexical development, COVID-19

Is it a matter of experience? Reading strategies of highly-literate dyslexic adults and basic-literate neurotypical adults

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Previous research suggested that reading strategies change along with reading development in neurotypical readers and that dyslexic children rely predominantly on (non-optimal) phonological decoding. To investigate whether high-functioning dyslexic adults would behave as neurotypical readers with basic reading skills (due to reduced exposure to the written code), dyslexic college students (n=17) and 3 neurotypical groups, i.e., college students (n=17), basic-literate (n=15) and ex-illiterate (who learned to read during adulthood; n=1 performed a visual lexical decision task. To investigate their reading strategies, lexicality (word vs. nonword), length, and word-frequency were manipulated. Basic-literate adults and dyslexics showed a larger lexicality effect than typical college students. Basic-literate and ex-illiterate adults also showed an overall length effect (from d = 0.23 to d = 0.38), which was restricted to nonwords in dyslexics (d = 0.29) and was not found in neurotypical college students regardless of lexicality. Thus, neurotypical readers with low reading skills seem to rely overall on phonological recoding strategies, whilst highly-literate dyslexics (with ample reading experience) have possibly developed better or larger orthographic units that granted fast access to orthographic lexicon. Although dyslexic adults do not behave as neurotypical readers with basic-literacy, they neither have overcome their reading difficulty. Indeed, the absence of length effects for words and nonwords was exclusive for neurotypical college students, possibly due to an analogy effect when reading nonwords.

Keywords

dyslexia, lexical decision, adult literacy, phonological processing, orthographic processing

The impact of diacritical marks in visual word recognition

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CIPSI, UMINHO

Recent research has examined the influence of diacritics in word processing in languages in which diacritics signal vowel quality (e.g, “Löwe” ['lø?v?] vs. “Lowe” ['l?v?] in German) or lexical stress (e.g., (e.g., “fácil” ['fa?il] vs. “facil” [fa'?il]) in Spanish). Results showed that whereas no processing differences were observed between accented words and their non-accented counterparts in Spanish, performances in German deteriorated when the diacritic was omitted (Perea et al., 202. Thus, the distinct roles of the diacritic seem to result in processing asymmetries in different languages. However, whether an asymmetry should emerge within a language where the diacritic can have multiple functions like European Portuguese (EP), remains open for discussion. This was the aim of the present study in which EP speakers were asked to indicate if the words presented on screen were abstract or concrete. Half of the words were presented in their real accented format, and half were presented without the diacritic. Results showed that when the diacritic changes the vowel quality there is a cost in processing as in German. Interestingly, they also showed that when the diacritic does not change the vowel quality there is a cost in those words in which the absence of diacritic lead to changes in syllabic structure (hiatus-diphthong). These results have important consequences for the most prominent models of visual word recognition (e.g., Adelman, 2011; Davis, 2010), which do not include accented vowels in their simulations or predict how these letters might be represented in lexical memory.

Keywords

diacritical marks, visual word recognition, European Portuguese language, syllabic structure

Inter-age and cross-language comparison of animacy word-ratings: Data from Portuguese and British young and older adults

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Animate/living stimuli play a crucial role in several cognitive systems (e.g., memory, attention, language), comparatively to inanimate/non-living items. For example, animates are better remembered (the mnemonic animacy effect) and are processed more automatically (animate monitoring hypothesis) than inanimates. Despite the growing literature reporting the importance of animacy in cognition, animacy effects have been demonstrated mostly in young but not in older adults. Furthermore, this variable has often been neglected in research, partly due to a lack of animacy rating data, particularly for older adults. Questions also remain about the cross-language consistency of animacy ratings. In this study, we present animacy word-ratings for 500 British English and 224 European Portuguese nouns, collected among young (n=248 Portuguese, data from a previous study; n=161 British) and older native speakers (n=118 Portuguese; n=207 British). Each word received at least 20 ratings. The results revealed that Portuguese participants tended to rate words as more animate than British participants. The older adults also assigned higher animacy ratings to words than the younger adults. The Age X Language interaction was not significant. However, there was a high animacy inter-rating agreement among all samples. These results suggest that elderly and young adults process the animacy meaning of words similarly, although with some differences. Possible reasons for these differences will be presented, as well as potential implications for research. The animacy word-ratings will be publicly available via OSF: https://osf.io/w6jgr/.

Keywords

animacy, age differences, language differences, word-rating study

Visual attention and automatic thoughts during exposure to erotica as predictors of sexual arousal in cisgender heterosexual men and women

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Theoretical models on sexual response emphasize attention toward erotica as a key factor determining sexual arousal. That assumption has established the foundations for current sex therapy. Yet, evidence on the putative link between visual attention toward erotica and sexual arousal is missing. The present study tested the effect of visual attention toward erotica on sexual arousal while accounting for participants' automatic thoughts during sexual exposure. Cisgender, heterosexual participants (68 women and 48 men) were exposed to a 3-minute video clip displaying consensual heterosexual explicit sexual intercourse. Visual attention (dwell time) and sexual arousal (pupil size) were captured with an eye tracker; participants provided subjective sexual arousal and automatic thoughts during exposure to erotica by means of self-report. Findings regarding sexual arousal as indexed by pupil dilation revealed that while visual attention to the genital component of the scene predicted increased sexual arousal, distractive/disengaging thoughts resulted in decreased sexual arousal, and thoughts about the actress resulted in increased arousal, significantly adding to the effects of visual attention. Likewise, findings on self-reported sexual arousal showed that sexual arousal/erotic thoughts had an incrementing role in sexual arousal while distractive/disengaging thoughts resulted in reduced sexual arousal. No effects were found regarding visual attention. Despite theoretical assumptions supporting the positive effects of visual attention toward erotica in sexual arousal, automatic thoughts during the sexual context may play a more central role in sexual response.

Keywords

sexual arousal, visual attention, sex stimuli

Attractiveness: What can we learn from algorithms?

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Universidade do Minho

What makes a pretty face? From an evolutionary perspective, sexual dimorphism has been linked to perceived attractiveness, with more masculine men and feminine women being judged as more attractive. Additionally, symmetry has also been found as an important predictor of facial attractiveness, for both sexes. Recently, deep learning techniques have been used to predict facial attractiveness. The objective of the present work is to understand if algorithms replicate human judgements of attractiveness. Thus, our hypotheses are: congruent manipulations (masculinized men and feminized women) will be rated as more attractive (H1); and symmetrized versions will be perceived as more attractive, both for men and women (H. This work uses transfer learning to predict facial attractiveness. A set of six image recognition models were trained in four facial pictures databases with attractiveness ratings (n = 6848). The best model, VGG-19, was fine-tuned achieving a high prediction correlation of .86 in the test-set. With respect to the first hypothesis, we found a surprising interaction effect between gender and sexual dimorphism. The feminized versions of the women's faces were perceived as more attractive than the masculinized ones, as well as the feminized versions of the men's faces compared to the masculinized ones. Concerning the second hypothesis, the results confirm that both for women, and men, symmetrized versions were judged as more attractive in comparison to the original ones. Our data provides new findings towards the understanding of facial attractiveness both from an algorithmic point of view as well as from the human behavior itself.

Keywords

attractiveness, dimorphism, symmetry, deep learning

Prior knowledge of object-color associations can facilitate and hinder working memory for colored objects

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Recent research showed that prior knowledge could facilitate the retention of detailed visual information about colors in working memory. Participants studied colored objects for a color wheel test. Colors were either congruent with prior knowledge (e.g., yellowish banana), incongruent with it (a blueish banana), or neutral (no association; a greenish book). Participants remembered more detailed colors in the congruent than incongruent and neutral conditions. Hence long-term memory knowledge supplemented working memory. The present study assessed if object-color prior knowledge could also facilitate the retention of detailed memories of the object's shape. Participants (N = 7 studied congruent, incongruent, and neutral objects for an immediate color and shape test. To assess detailed shape memory, we implemented a six-choice recognition test containing two versions of the target object (original and modified), two versions of an intrusion object (i.e., that appeared in a non-tested location), and two versions of a new object (it did not appear in the trial). Replicating prior work, the congruent condition produced more detailed color memory than the other conditions. For object memory, congruency improved target selection overall (original + modified) but not the selection of the original shape specifically, rejecting the hypothesis that congruency boosts detailed shape memory. Unlike prior work, we observed costs for the incongruent condition: Color memory declined, and memory for the original target shape was worse. These results suggest that forming a representation incompatible with prior knowledge may consume more working memory resources.

Keywords

visual memory, working memory, prior knowledge, color reproduction, object recognition

Adaptation increases neural responses through a reciprocal inhibition circuit in human MT+/V5 leading to changes in perceptual decision

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Functional magnetic resonance imaging (fMRI) based adaptation has been developed as a tool to identify functional selectivity in the human brain. This is based on the notion that stimulus selective adaptation leads to direct response suppression. This phenomenon has also been coined as repetition suppression. Neurophysiological experiments have considered it at the level of single neuronal populations. Here, we went a step further by showing that adaptation can also reveal the influence of neighboring neuronal populations, such as reciprocal inhibition, by modulating neural responses in motion selective human MT+/V5 and perceptual decision. If reciprocal inhibition exists in this region, the following predictions should be fulfilled: 1. The hMT+/V5 net response would not decrease during stimulation, as predicted by simple repetition suppression of activated neuronal populations. It would be maintained or even increase due to the activity from adjacent populations; 2. In perceptual decision tasks involving competing motion representations, perceptual preference would reflect decreased reciprocal inhibition by adaptation; 3. Neural activity for the competing perceptual representation should also later on increase upon adaptation. Our experimental results are consistent with all these predictions, showing that reciprocal inhibition at the perceptual and neural level can be revealed in the human brain using fMRI.

Keywords

perceptual bistability, neuronal inhibition, neuronal adaptation, visual perception, fMRI

Externalizing pigeons' temporal judgments

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Pigeons learned to discriminate between stimuli that differed in duration, in a long operant chamber, while their movements were tracked throughout the trials. The chamber had three response panels – two in the side walls and one in the central wall – each with response keys and a feeder. In each trial, a key in one of the panels was turned on for 4 or 12 s (sample). Then, two keys, one in each of the other panels was turned on (comparisons) and the pigeon had to choose between them: If the sample was short (4 s), one side key was correct (e.g., the key on the left panel) whereas, if the sample was long 2 s), the other side key was correct (e.g., the key on the right panel). The location in the chamber in which the sample and comparisons were presented varied across three experiments. We analyzed pigeons' preferences and their movement patterns. Pigeons tended to move in the chamber in a way that allowed selecting the correct comparison as soon as it was presented, thus collecting reinforcements as quickly as possible. Additionally, there appeared to be an interaction of travel distance with outcome certainty. Delay and no-sample test trials were included. Movement patterns on those trials were also analyzed and showed that pigeons tended to move to the middle of the chamber independent of what was associated with that location.

Keywords

timing, matching-to-sample task, preference, movement pattern, pigeon

Oral approach avoidance: O impacto do efeito in-out na perceção de utilizadores online

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Evidência recente revela que a contração dos músculos oro-faciais durante a leitura, mesmo silenciosa, tem impacto na avaliação das palavras, sejam elas apresentadas como pseudo-palavras, nomes de pessoas, ou marcas. Este efeito, denominado in-out, reporta uma preferência por palavras cuja articulação induza movimentos da parte frontal para a traseira da boca, simulando movimentos de ingestão, face a palavras com o sentido oposto, i.e., que simulem movimentos de expectoração. Na área da perceção de pessoas verificou-se que quando as pseudo-palavras são apresentadas como nomes de utilizadores, é possível replicar o efeito-in-out para julgamentos de preferência e de sociabilidade, mas não de competência. Num conjunto de estudos, replicámos o efeito in-out combinado a manipulação da articulação das consonantes dos nomes de utilizadores com fotografias de utilizadores com diferentes expressões faciais. Como esperado, utilizadores com expressões faciais positivas foram avaliados como mais sociáveis e competentes do que aqueles que apresentavam expressões negativas. Além disso, mesmo na presença de pistas visuais determinantes para julgamentos sociais, a atividade articulatória afetou a impressão formada: utilizadores com nomes que simulam movimentos de ingestão foram considerados mais sociáveis mas não mais competentes. Dado que este efeito enviesa julgamentos de sociabilidade (mas não de competência), enquanto as expressões faciais contaminam os julgamentos interpessoais de uma forma transversal, torna-se plausível considerar que estas manipulações afetivas não resultam do mesmo mecanismo. O presente trabalho contribui para demonstrar o papel das experiências sensoriomotoras na perceção de pessoas enquanto acrescenta evidência sobre as condições em que o efeito não emerge.

Keywords

articulação oral, aproximação-evitamento, corporalização, perceção de pessoas

Reactive and Proactive Control in the Presence of Others

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Previous research has shown that individuals perform better in Stroop tasks when in presence of others than when in isolation. This suggests that we control cognitive interference better in the presence of others. However, the mechanisms underlying this upregulation effect are unknown. To explore these processes, we based the present study on the dual mechanisms framework (Braver, 201 that postulates two distinct modalities in which cognitive control operates. Specifically, we address if the social upregulation of Stroop effect is due to an enhanced proactive control (determined by an anticipatory and sustained selective process) and/or a more effective reactive control in a later adaptive phase (following the detection of conflict or interference). 49 participants performed 4 blocks of a Stroop task in a co-action setting and 42 participants in isolation. These blocks of 80 trials each (total=320) varied in the proportion of congruent and incongruent trials and RSI (response stimulus interval), which allows separating effects of proactive and reactive control processes. The results showed that participants in the presence of others control better for interferences in relation to participants in isolation, and these differences only occur in the conditions associated with reactive control. Analysis of the temporal dynamics (delta-plots) reveals that these differences increase with reaction time for both most congruent and long RSI conditions (associated with reactive control). The main conclusion is that social presence improves the reactive control that occurs in later stages of processing. The results are confronted with the main theories on social facilitation.

Keywords

social facilitation, Stroop task, reactive control, proactive control

The psychological costs of neglected intuitions and subsequent impact on decision-making

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Intuitions are spontaneous and unbidden, often experienced as knowledge that is "given" and revealing of self-insight. Lay reasoning holds that one should not go against intuition, for it can prove costly (e.g., "You should not change your first answer on a multiple-choice test"). However, the psychological consequences of neglecting intuitions when conflicted with deliberate analysis, especially in the face of losses or bad decisions, have been overlooked. In two studies, we investigated the psychological consequences of neglected intuitions and analyses in decision-making, addressing the hypothesis that loses based on neglected intuitions promote greater decisional regret compared to that of neglected analyses. The moderating roles of perceived decision elaboration (Study 1) and cognitive styles (Study 2) were tested. In Study 1, Fantasy Football players engaged in a team-selection scenario study. Players perceived experiencing greater decisional regret after a bad decision resulting from a neglected intuition after low elaboration on the team-selection, but greater regret when neglecting analysis after high elaboration. In Study 2, we tested the impact of decisional regret on subsequent decision-making, after neglecting intuitions or analyses. Epistemic motivation to elaborate (Need for Cognition; NC) and tendential reliance on intuition (Faith in Intuition; FI) were assessed. Participants made an intuitive or analytical decision on a ratio-bias task, which resulted in a bad outcome. Greater regret was observed for neglected intuitions among low-NC and high-FI participants, and for neglected analyses among high-NC and low-FI participants. Such experienced regret significantly predicted subsequent intuitive/analytic decision-making in subsequent base-rate neglect and syllogistic reasoning tasks.

Keywords

intuition, analysis, decision-making, elaboration, regret

A amplificação social de enviesamentos de raciocínio

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Laboratório de Instrumentação e Física Experimental de Partículas

Um dos grandes benefícios da espécie humana é a nossa capacidade de aprender através da informação que nos é comunicada por outros. Porém, esta informação pode ser distorcida de várias formas. Em dois estudos (N total = 240), estudámos a transmissão de problemas de raciocínio que tipicamente geram uma reposta intuitiva errada e requerem esforço deliberado para a sua resolução (do Teste de Reflecção Cognitiva; Frederick, 2005). Para tal, os participantes formaram cadeias de três elementos e passaram por um procedimento com três fases. Na primeira fase, deviam ler e resolver um problema (o original para os participantes na primeira posição da cadeia, o comunicado por um participante anterior para os restantes). Na segunda fase, deviam escrever o que se lembravam do problema, de forma que o problema pudesse ser apresentado a outro participante. Na última fase, os participantes deviam ler e resolver o problema original (outra vez, para os participantes na primeira posição). Os resultados revelaram que, à medida que o problema foi transmitido de pessoa em pessoa, houve um aumento significativo de versões distorcidas dos problemas, onde a resposta certa passou a ser a intuitiva, retirando assim a necessidade de deliberação para a sua resolução. Para além disto, quando foi pedido aos participantes que lessem a versão original dos problemas, a frequência da resposta correcta deliberada diminuiu significativamente quando os participantes receberam versões distorcidas de outros participantes, por comparação com versões intactas. Por fim, as implicações para o raciocínio individual e colectivo são discutidas neste trabalho.

Keywords

modelos duais, detecção de conflito, reprodução serial, enviesamento

When Type 2 Processing Misfires: The Indiscriminate Use of Statistical Thinking about Reasoning Problems

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Research on dual-process theories of judgment makes abundant use of reasoning problems that present a conflict between Type 1 intuitive responses and Type 2 rule-based responses. However, in many of these reasoning tasks, there is no way to discriminate between the adequate and inadequate use of rules based on logical or probabilistic principles. To experimentally discriminate between the two, we developed a new set of problems: rule-inadequate versions of standard base-rate problems (where base rates are made irrelevant). Across four experiments, we observed conflict sensitivity (measured in terms of response latencies and response confidence) in responses to standard base-rate problems but also in responses to rule-inadequate versions of these problems. This failure to discriminate between real and merely apparent (or spurious) conflict suggests that participants often misuse statistical information and draw conclusions based on irrelevant base rates. We conclude that inferring the sound use of statistical rules from normatively correct responses to standard conflict problems may be unwarranted when this kind of reasoning bias is not controlled for.

Keywords

dual-process theory, reasoning, judgment, bias, metacognition

Questions, Answers, Problems, and Suggestions for the Replication Crisis

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Several influential psychological studies failed to replicate intensifying the so-called replication crisis in experimental psychology. Like an economic crisis, the replication crisis created a climate of uncertainty, prompting heated debates about which practices we must change to overcome it. We set out to review the replication crisis debate, looking to philosophy of science, particularly the new experimentalism, for insights how to move forward our field. In this talk, I will point out that many interventions to fix the crisis could never have accomplished the unrealistic expectations of their proponents. I will also reiterate that, as a scientific community, we have failed to remove the so often criticized perverse incentive structures, but we have succeeded in adding new better incentives. Because we did not remove the perverse incentives, the new better ones had little impact, and were sometimes perverted by the preexisting bad ones. Drawing from the philosophy of science, I will make different suggestions on how to improve our scientific practice and our teaching. Importantly, our proposals and the ones made during the crisis are not mutually exclusive. Moreover, neither set of suggestions will have the desired effect if we leave the perverse incentive structures in place. To this end, I will renew the call for action to change those structures. I will also highlight how the suggestions drawn from philosophy of science can help our experiments gain a life of their own, providing heuristics to guide our experiment design, data analysis, and inferences.

Keywords

replication crisis, philosophy of science, new experimentalism, research practices, social cognitio

Visual adaptation and negative hysteresis in colour cone pathways dominates even in short memory and is abolished by perceptual binding

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To make perceptual judgements, the human visual system is constantly processing dynamic sensory information which is frequently ambiguous and competing for alternative perceptual interpretations. This is also true for color perception given the competition between mechanisms such as adaptation or visual persistence which relate to a phenomenon known as perceptual hysteresis. Persistence leads one to keep a current percept for longer (positive hysteresis) and adaptation in turn favors the switch to a competing percept early on (negative hysteresis). The goal of this study was to investigate the competition of these temporal context-related mechanisms in color perception in distinct human cone pathways. We also asked whether high-level mechanisms such as memory and perceptual binding influence these mechanisms. To this end we designed a color-matching paradigm (n=20) using color changing stimuli in Blue-Green and Green-Red color axes, manipulated in cone space. We used conditions requiring or not holistic perceptual binding (Simple vs Compound stimuli, respectively) and with or without the need to use short-term memory. The experimental color-matching task required comparison of the changing color to a target color and to press a button when their appearance matched. We found that negative hysteresis was present for simple matching (including memory) conditions, showing that adaptation dominates over persistence. This effect, however, disappeared when the stimulus conditions required binding of local elements into a bound stimulus. We conclude that ongoing perceptual decision-making is influenced by the trajectory of very recent sensory experience and depends on whether perceptual binding is required or not.

Keywords

decision making, hysteresis, short-term memory, visual perception, Gestalt, color perception

Visual Search Asymmetries and Acceleration Dynamics: An advantage for gravitationally coherent motion?

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Human observers are remarkably inaccurate at estimating objects' accelerations, except when the latter conforms to gravitational acceleration, both in visual perception and hand interception tasks. These observations, along with a wealth of converging research lines, has led support to the notion that specialized neural processes output aprioristic information about the expected effects of gravity to fine-tune motor or perceptual responses to dynamic events. Arguably, this putative internal model of gravity should increase the efficiency in the detection of gravitationally coherent dynamics. In the present work, we tested this hypothesis by exploring asymmetries in visual search involving arrays of 2 to 8 periodically moving objects. The target could be a "bouncing" object (acceleration/deceleration motion pattern) with distractors moving at a constant speed (back and forth) or the reverse (constant speed target with "bouncing" distractors) and participants required to indicate, as fast as possible, if the target was present or absent, by pressing one of two keys in a response pad. Each participant performed 4 blocks of trials – 2 (Target Dynamics) × 2 ("bouncing" direction for the target or the distractors) – with axes of motion (horizontal or vertical) varied between participants. Visual search efficiency, as measured by the slope of the line relating reaction times to array size, was higher for "bouncing", as compared with constant speed targets, and more so for targets "bouncing" downwards, in a gravitationally coherent manner. Outcomes suggest that gravitationally coherent dynamics can be taken as a basic feature to which an internal model of gravity is tuned.

Keywords

motion perception, event perception, internal model of gravity, visual search, search asymmetry

Effects of Target's Acceleration on Representational Momentum and Representational Gravity: Evidence for an Internal Model of Gravity?

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When people indicate the vanishing location of a moving target that suddenly disappears, a systematic error forward, in the direction of motion, and downward, in the direction of gravity, emerge. These spatial displacements were coined, respectively, Representational Momentum and Representational Gravity, in accordance with the notion that they reflect internalized ecologically relevant physical invariants used to anticipate future states of an event and. Notwithstanding, in most studies, the target is shown moving at a constant speed, despite the fact that real-world moving objects seldom move in that fashion. This is particularly relevant for studies on Representational Gravity, given that a putative internal model of gravity arguably encompasses expectations regarding gravitational acceleration. The present study aims to fill this gap. Participants performed a standard spatial localization task where they had to indicate the perceived offset location of a target, depicting a volleyball, either accelerating, decelerating or moving at a uniform speed over a background representing a volleyball court. Target's size and seen dynamics were matched to the optical image that would result from seeing an actual volleyball at about 10 meters away. Participants also performed the same task, but with a uniform luminance target and a blank background. Viewing was constrained to the screen with the aid of an opaque black fabric. Results disclosed a pattern were target's dynamics significantly affected the magnitude and time course of both Representational Momentum and Representational Gravity, with these effects being modulated by the presence/absence of pictorial cues.

Keywords

motion perception, event perception, internal model of gravity, representational momentum, representational gravity

Visual Spatial Orientation and Representational Horizon in Interior and Exterior Scenes

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The perceived offset position of a moving target has been shown to be consistently displaced forward, in the direction of motion (Representational Momentum;RM), downward, in the direction of the observers' feet (Representational Gravity;RG), and, recently, further displaced along the horizon implied by the visual context (Representational Horizon;RH). Importantly, the latter, while still under-explored, offers the prospect to clarify the role of visual contextual cues in spatial orientation and how it modulates the perception of dynamic events. As such, the present work sets forth to (i) ascertain the robustness of RH across varying types of visual contexts, particularly between interior and exterior scenes, and (ii) to clarify up to what degree RH reflects a perceptual or response phenomenon. To that end, participants were shown targets, moving along one out of several possible trajectories, overlayed on a randomly chosen background depicting either an interior or exterior scene rotated -22.5º, 0º or 22.5º in relation to the actual vertical. After covering a fixed distance onscreen, the target suddenly disappeared and participants were required to indicate its last scene location with a computer mouse. For half the participants, the background vanished with the target while for the remaining it was kept visible until a response was provided. Individual measures for RM, RG and RH were obtained for each condition with a Fourier decomposition procedure. Outcomes showed that RH was affected by the orientation of both types of visual context, irrespective of its presence/absence during the spatial localization response, revealing its perceptual/representational nature.

Keywords

motion perception, representational momentum, representational gravity, representational horizon, spatial orientation

Directionality Effects on Object Recognition: Evidence from a Same-Different Matching Task

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Humans are remarkably quick at recognizing objects in the environment. It has been argued that to recognize objects so efficiently, the visual recognition system is equipped with hard-wired mechanisms to allow a fast recognition of the objects despite changes in size, position, and viewpoint, a property known as object invariance. In this work, we tested directionality (left-right) effects on object (animals) recognition to further analyse whether learning to read and write in left-to-right scripts (e.g., the Latin alphabet), might produce a right-orienting bias in object recognition (i.e., an advantage at deciding that two images of the same object presented in opposite directions correspond to the same object when the first is presented on a right rather than on a left orientation), as it was already observed for reversible and non-reversible letters (Soares et al., 2019, 2021). For this, we relied on the same-different matching task. Indeed, even though in a previous study (Araújo et al., 202 we had found evidence for a right-orienting bias, it was not entirely clear whether that effect arose from some task artefact (i.e., the location of the stimuli, which may have produced facilitation when the most distinctive features of the animals - heads - were presented closer to a fixation point that appeared on the centre of the computer screen than away from it, what occurred in the right- vs. left-orientation, respectively). With this new task, we sought to rule out this explanation in the interpretation of the previous results.

Keywords

visual processing, object invariance, right-orienting bias

Comparing Fear and Anxiety Body Odors: Do they induce similar facial muscle activity in receivers?

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The most studied emotions in chemosignal research are fear and anxiety – two high-alertness states. Despite the differences between these two emotional states, findings from research using fear and anxiety body odors (BOs) are often treated as part of a similar phenomenon. In this study, we aimed to examine possible similarities and differences between participants exposed to fear and anxiety BOs on the activation of facial muscles involved in displaying fear faces (i.e., the medial frontalis and the corrugator supercilii). This facial expression results in increased sensory acquisition (i.e., expanded visual field and nasal air intake), facilitating the processing of the surrounding environment. We sampled sweat from male donors during fear, rest, anxiety, and exercise contexts to achieve our goals. We presented it (in randomized order) to female receivers (N= 60) while the activity of their facial muscles was recorded (facial electromyography). Our results show that fear (vs. rest) and anxiety (vs. exercise) BOs induce higher activation of the medial frontalis, suggesting that both chemosignals have a comparable impact on receivers' facial musculature. No statistically significant results were observed for the corrugator supercilii. The observed activation of the medial frontalis suggests that both fear and anxiety BOs (i.e., BOs sampled during high alertness states) facilitate receivers' sensory acquisition and, hypothetically, the processing of the surrounding environment.

Keywords

fear, anxiety, body odors, facial electromyography

Open Biological Negative Image Set (OBNIS): A cross-cultural comparison focused on the relation between Valence and Arousal ratings

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In recent decades, many efforts have been made to develop tools to study emotions in controlled settings. This is the case of several image sets validated to induce distinct emotional reactions. The recently developed OBNIS is one of those and was initially validated for the Japanese population. Nevertheless, as evidenced by data from other image sets, Eastern and Western populations present important differences in assessing emotion-related stimuli, especially when valence and arousal ratings of images are considered. Hence, this study aimed to validate OBNIS for the Portuguese population, exploring the differences between this and the Japanese population. Portuguese participants (N=101) were presented (in randomized order) with the 200 images from OBNIS, being instructed to rate each image on valence and arousal dimensions. Their data was then compared with the data from the Japanese population. Results showed important cross-cultural differences, especially for positive valenced images. For the Portuguese population, arousal shows an asymmetric v-shape function of valence: it increases either for more negative or positive stimuli, being higher in general for negative (vs. positive) valenced stimuli. However, this asymmetric v-shape function was not observed for the Japanese population. Arousal increased for more negative but not for more positive valenced stimuli. In the case of positively valenced images alone, arousal was nearly independent of valence. These results stress the importance culture has on how individuals perceive, feel, and express emotions, highlighting the relevance of cross-cultural studies for this research field.

Keywords

cross-cultural comparison, valence, arousal

Influence of emotional valence during visual word recognition: an ERP study.

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Effects of emotional valence have been observed in lexical decision tasks. The present study aims to analyze whether emotional valence affects the early prelexical stages of visual word recognition or whether it influences only later semantic processing. For that, we conducted an event-related potential (ERP) lexical decision experiment with negative and positive valence words, controlling for lexical frequency (low vs. high). The results showed no differences between the emotional valence and frequency levels at the early stages of processing (as indexed by N170), suggesting the absence of early emotion valence effects. On the other hand, in a later processing stage, the N400 component showed larger amplitude (more negativity) for high-frequency negative words compared to the remaining conditions (high/low-frequency positive and low-frequency negative words). The fact that positive words presented less negativity in this ERP component suggests a more facilitated semantic processing for item from this emotional valence category.

Keywords

lexical decision task, emotional valence, event-related potentials, N170, N400, visual word recognition

An eye movement study of visual word recognition: The effect of word frequency and emotional valence

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Visual word recognition is a well-studied domain in cognitive psychology. Traditionally, the effect of psycholinguistic variables such as word frequency has been studied, but recently the role of emotional valence in word recognition has been considered. Previous studies have shown that eye movements reflect the time course of cognitive processes involved in reading. For further clarification of the influence of emotional valence on visual word recognition, forty-five participants performed a Lexical Decision Task (LDT) while their eye movements and pupillary response were recorded. For the LDT, word frequency (high vs. low) and emotional valence (positive vs. neutral vs. negative) were manipulated. All behavioral and ocular measures confirmed the overall recognition advantage of positive valence words and a delay for neutral and negative words. However, word frequency had a stronger influence on recognition, benefiting the identification of high-frequency words. Interestingly, the effect of emotional valence was attenuated for high-frequency words, while it interferes strongly with low-frequency words, which are recognized later. These results allow us to suggest that the emotional content conveyed by words may be processed at a later stage of recognition, that is, post-lexical processing.

Keywords

visual word recognition, emotional valence, frequency, eye movements, pupillary activity

How and when do spatial location and emotion interact in voice perception? An ERP study

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Voices carry a vast amount of information about speakers (e.g., emotional state) and their spatial location. Neuroimaging studies postulate that spatial ('where') and emotional ('what') cues are processed by parallel, partially independent, processing streams. Although behavioural evidence reveals interactions between emotion and space cues, the neural mechanisms underlying these processes and how they are impacted by attention remain unknown. We investigated how spatial and emotional features interact during voice processing, and whether these interactions depend on attention, using event-related potentials (ERP) of the electroencephalogram. Spatialized nonverbal vocalizations differing in valence (neutral, positive [amusement] or negative [anger]) were presented from different locations around the head (front vs. back; left vs. right), while participants performed either a spatial discrimination or an emotion recognition task. Emotion modulated the amplitude of early (N1, P and late (LPP) ERP components: emotional vocalizations elicited decreased N1 but increased P2 and LPP amplitudes. Spatial location interacted with emotion on the P2: the P2 was increased to neutral vocalizations presented from the right (vs. left) side, but no differences were observed in the case of emotional sounds. The effects of task were non-significant. These findings reveal that emotional representations are activated earlier than spatial representations, irrespective of attention focus. They support the prioritization of emotional cues in voice processing compared to other types of vocal features.

Keywords

voice, emotion, spatial location, attention focus, event-related potential

Does blindness modulate the temporal course of emotional authenticity perception?

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The ability to distinguish authentic from deceitful emotional expressions is a relevant social skill. To detect the authenticity of an emotional expression, blind listeners cannot retrieve information from facial expressions or body language, relying more heavily on vocal cues. However, the behavioral and neural mechanisms underpinning emotional authenticity perception in the blind are currently unknown. In the current study, we used behavioral and event-related potentials (ERP) measures to study whether and how blindness affects the perception of emotional authenticity in vocalizations. We also aimed to understand how the age of blindness onset (early vs. late) affected these mechanisms. Fifty-one individuals with different visual conditions 7 early-blind, 17 late-blind, 17 sighted controls) completed two tasks while electrophysiological data was recorded. In these tasks, participants heard laughs and cries varying in authenticity (spontaneous vs. volitional) and emotional quality (sadness vs. amusement). The N1, P2, and late positive potential (LPP) ERP components were analyzed. Behaviorally, the late-blind group was generally less accurate at detecting the authenticity of vocalizations than the sighted group, who did not significantly differ from the early-blind group. Our ERP results showed enhanced sensitivity to authenticity effects at salience detection processing stages (P in the case of early- and late-blind listeners, but early blindness also modulated early sensory (N1) and late cognitive evaluative stages (LPP) of vocal emotion perception. Overall, our findings suggest that blindness modulates the temporal course of emotional authenticity perception, particularly in early-blind listeners. They additionally suggest that late-, but not early-onset blindness, deteriorates emotional authenticity perception.

Keywords

blindness, vocal emotion perception, emotional authenticity, event-related potentials, neuroplasticity

Go or No-Go? The role of emotion and perceptual ambiguity in behavioral inhibition

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Inhibitory control enables change and choice, encompassing several distinct mechanisms such as behavioral inhibition – the suppression of motor movements and prepotent responses, either voluntary or not. Previous visual studies showed that the emotional quality of a stimulus, as well as perceptual ambiguity, modulate behavioral inhibition. However, it remains to be clarified how they affect inhibition in the auditory domain. This study probed the neurocognitive mechanisms underpinning behavioral inhibition using emotionally ambiguous and non-ambiguous vocalizations. Sixty-six college students completed a Go/No-Go task while EEG data were recorded. Stimulus type (Go, non-ambiguous No-Go, and emotionally ambiguous No-Go) and emotional quality (angry vs. neutral) were manipulated. Two blocks were presented, each with 300 Go (e.g., 90% angry vocalization), 50 emotionally ambiguous No-Go (e.g., 50% angry morphed vocalization), and 50 non-ambiguous No-Go (e.g., 90% neutral vocalization) vocalizations. The emotional quality of Go and non-ambiguous No-Go stimuli was counterbalanced. Commission errors, the N2 and P3 ERP components were analysed. Emotionally ambiguous No-Go vocalizations led to more commission errors, reflecting the absence of differences in N2 amplitudes between No-Go and Go vocalizations: distinguishing between the two was difficult during conflict detection. Motor inhibition was influenced by both emotional quality and perceptual ambiguity: increased P3 amplitudes were observed for emotionally ambiguous No-Go vocalizations. These findings indicate that the allocation of resources needed for inhibitory control is not solely modulated by emotion. How efficiently a response is inhibited also depends on perceptual ambiguity, as ambiguous information hinders inhibition.

Keywords

emotional salience, ambiguity, inhibitory control

Anxiety's grip over social perception: How are visual predictions used when under threat

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The repercussions of anxiety in one's life are well known. One of its less recognized effects, as evidenced by mismatch negativity studies, concerns visual perception and how we weigh sensory evidence. However, the real-life repercussions of these conclusions remain unexplored. Here we investigated how anxiety affects our ability to gather and use social cues to anticipate the action of others. We used a paradigm previously developed to assess the use of expectations in social scenarios, whereby participants were asked to identify one agent while supported by action cues (communicative vs individual actions) from another agent. Participants (N=66) underwent this task under safe and threat-of-shock block conditions. We extracted criterion and sensitivity measures to evaluate participants' response patterns; gaze data was also collected. Our analysis showed that whilst the type of action had the expected effect (i.e., a lower criterion for communicative actions), block had no effect over any response measurements. Furthermore, eye tracker data revealed no differences in dwell time across conditions when searching for cues but showed that, under threat, participants had shorter fixation durations. Some limitations are brought forward, but the takeaway message is that anxiety does not appear to influence the use of expectations in social scenarios.

Keywords

interpersonal predictive coding, anxiety, expectations, social communication

Perceptual hysteresis in emotion recognition from biological motion: A happiness bias effect

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Emotion recognition can be interpreted as a non-linear dynamic process which is highly influenced by the flow of sensory information and is believed to be strongly dependent on the temporal context. Hysteresis is a phenomenon well-known from physics related to the time dependence of the state of a system, which can also be studied in perception.

Perceptual hysteresis describes the influence of perceptual history in decision-making, and can be classified as positive or negative, depending on whether the current percept is maintained, or instead shifts early to the opposite percept during the temporal trajectory. Positive and negative hysteresis have been associated with mechanisms of short-term visual memory (persistence) and adaptation, respectively. Here, we studied the existence of hysteresis in the process of emotion recognition in biological motion patterns, by using smooth continuous stimulus transitions between two emotions, happiness and sadness, with the underlying hypothesis of the existence of a positive bias in emotion recognition. Participants (n=2 reported the initially perceived emotion and the moments of perceptual switch, both to a neutral state and to the opposite emotion. Behavioural assessment revealed the existence of perceptual hysteresis in emotion recognition, with a predominance of positive hysteresis but a significant contribution of negative hysteresis. The direction from sadness to happiness presented a faster perceptual switch, demonstrating the existence of a happiness bias in emotion recognition in biological motion. Finally, the presence of both positive and negative hysteresis in the same direction suggests a competition between the mechanisms of visual persistence and adaptation.

Keywords

hysteresis, emotion, biological motion, perceptual decision, happiness bias

The interaction effect between attractiveness and emotions on time perception

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What makes us freeze when looking at an opposite-sex face? Research suggests that we overestimate the duration of attractive opposite-sex faces. Attractiveness may increase cognitive load, which would explain this effect on time perception. Similarly, emotional facial expressions have also been linked to longer perceived durations. A previous study found an overestimation of time perception when viewing angry facial expressions compared to neutral ones, but only for attractive faces. Therefore, the present study intends to explore the interaction effect between emotional expressions and attractiveness on time perception. We hypothesize that angry faces will be perceived as lasting longer than happy and neutral faces, but only when attractive faces are presented. We use a mixed design with two between-group conditions (attractiveness vs. dimorphism) and two within-group conditions: emotional stimuli (angry vs. happy vs. neutral) and attractiveness manipulation (attractive vs. unattractive or feminized vs. masculinized). The experimental task consists of an oddball visual task. Specifically, participants are presented with sequences of five stimuli of identical duration, of which the first four are sine-wave gratings (Gabor discs) and the fifth is an attractive or unattractive face (attractiveness group) or a masculinized or feminized opposite-sex face (dimorphic group) with one of the three emotional stimuli. Preliminary results suggest that, for some durations, women showed longer duration estimates for anger expressions but only for unattractive faces. This effect was not observed in either the dimorphic condition or in men. This result is inconsistent with our hypothesis and previous studies, and this new finding may indicate that attractiveness could mask anger expressions.

Keywords

time perception, attractiveness, emotions, dimorphism

The retention of biological and scrambled movements in working memory and its effect on social skills

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Previous studies showed that the ability to retain in working memory biological movements is associated with higher levels of empathy. In the present study, we intend to replicate and extend these findings by analyzing how working memory to biological motion is associated to an individual's level of empathy and social skills (social awareness, prosocial behavior, self-management, motivation, decision-making and self-awareness). In our study, subjects are asked to retain in their working memory (change-detection task) intact point-light walkers or scrambled point-light walkers, walking at different velocities and presented walking in different directions (approaching, moving away or laterally passing the viewer). This is a cross-sectional study, i.e., a set of subjects participate in the intact point-light walker condition and another set of subjects participate in the scrambled point-light walker condition. In addition to the change detection task, questionnaires on empathy, social skills, positive and negative affections and finally a sociodemographic questionnaire will be presented. We hypothesize a greater retention in working memory for biological in relation to scrambled motion. Moreover, approaching biological movements will also be associated with higher levels of retention, since this type of movement is considered more threatening from the point of view of evolutionary psychology. Finally, we also hypothesize that higher levels of empathy and social skills will be associated with greater working memory skills for biological movements.

Keywords

point light walker, work memory, social skills, biological motion

The role of spatial working memory in spatial cognition: mental rotation & visualization

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Human cognition research has been particularly interested in the relationship between working memory and spatial ability. Regarding the latter, previous studies have indicated that spatial ability is not a unitary process and can be decomposed into various distinct spatial abilities. Specifically, researchers have distinguished between mental rotation and spatial visualization abilities. The aim of the present study was to investigate the potential role of spatial working memory not only in mental rotation, but also in spatial visualization. For that purpose, we included The Corsi Block-Tapping Test, as it is one of the most common tests used to assess spatial working memory and spatial short-term memory. Furthermore, we employed the Spatial Primary Mental Ability (PMA-S) to assess the mental rotation ability, and the Space Relations subtest of the Differential Aptitude Test (DAT-SR) as the spatial visualization task. Seventy-five undergraduate students participated voluntarily (62 females, 13 males). The results of this study showed that, first, spatial working memory and spatial short-term memory were significantly correlated with each other (rxy= .355, p =.00. Second, the scores from the two spatial ability tests (PMA-S and DAT-SR) were also significantly correlated (rxy= .274, p =.017). Third, the mental rotation task (PMA-S) was positively correlated with both spatial memory tests (spatial working memory, rxy= .233, p =.044; spatial short-term memory, rxy= .328, p =.004). Lastly, in contrast, the spatial visualization scores (DAT-SR) did not correlate with either the spatial working memory (rxy= .096, p =.414) or the spatial short-term memory (rxy= .042, p =.72.

Keywords

spatial cognition, mental rotation, spatial visualization, spatial working memory

Looking-at-Nothing and Memory Strength in Working Memory

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When retrieving information from long-term memory, people tend to gaze toward the spatial location where this information appeared, a behavior known as “looking-at-nothing” (LAN). One explanation for LAN is that the strength of the retrieved representation in working memory drives the gaze toward its previous location. The current study examined whether LAN occurs in a working memory task and whether it varies with the strength of the retrieved representation. Memory strength was manipulated through the frequency of color-shape bindings. Half of the memory shapes had a 50% chance of being presented with one particular color (high binding) and a 5.5% probability of occurring with any other color (low binding). Finally, the other shapes were randomly paired with the colors (random binding). Participants (N = 3 completed 120 trials. During each trial, four colored shapes appeared sequentially across four squares positioned in an invisible circle. At the test, one shape’s name was presented auditorily and participants recalled aloud its color. Eye movements were tracked with an Eyelink 1000 Hz. Participants recalled correctly ca. 50% of the colors, yet task accuracy did not vary with binding frequency. LAN was not very consistent. At the test, the gaze was less frequently directed to the location further from the probe’s original location; nonetheless, the gaze was equally likely to land on the probed and its adjacent locations. In sum, participants did not make use of binding frequency to improve their working memory performance and LAN was not consistently observed in this working memory task.

Keywords

working memory, looking-at-nothing, bindings, eye tracker

An open-source working-memory test battery for Opensesam

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Working memory (WM) encapsulates multiple functions (storage & processing, supervision, and coordination). However, several studies estimated WM capacity (WMC) with a single task or through several tasks from the same paradigm (e. g., complex-span). This may have been caused by a lack of comprehensive easily available digital instruments. In recent years, several batteries were developed to tackle this issue (Lewandowsky et al., 2010; Oswald et al., 2015). However, most of them were built in paid platforms (Matlab, E-Prime). Furthermore, these batteries solely include tasks from the same paradigm or only generate estimates of general WMC. Objectives: We developed a fully automated WM battery that includes measures from different paradigms (complex-spans, updating tasks, binding tasks) and generates estimates of general WMC and its functional aspects. Design: The battery was programmed in an open-source platform (Opensesame). The instrument was administrated to 162 Portuguese nationals (age range = 18-33 years). Results: Normative data was derived for the Portuguese population. A hierarchical structure with three first-order factors reflecting the functional aspects of WM and a second-order general WMC factor provided a good fit to the data (CFI = 0.97; RMSEA = .0059). All factor loadings were significant. The factor structure presented good reliability (ω = .81). Additionally, the battery was highly correlated with a fluid intelligence factor (r = .88). Conclusion: We present a fully automated open-source battery of WM tasks. This instrument generates estimates of general WMC and its functional aspects which addresses some issues that may have been neglected in past studies.

Keywords

working-memory, cognitive modelling, psychometry, normative data

Impacto dos sinais faciais das doenças potencialmente contagiosas na memória de destino

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A memória de destino consiste na capacidade de recordar a pessoa (destinatário) a quem contamos uma determinada informação. O desempenho adequado nesta memória depende da criação de uma associação entre a informação a transmitir e a pessoa a quem essa informação é dirigida. No procedimento usado para o estudo deste tipo de memória o desempenho é influenciado pela quantidade de recursos atencionais disponíveis para a codificação do rosto do destinatário. O presente trabalho apresenta duas experiências, tendo como objetivo compreender se a transmissão de informação a rostos que apresentam sinais de doenças potencialmente contagiosas influencia a memória de destino. Na Experiência 1 foi pedido aos participantes que contassem provérbios a rostos com e sem sinais de doença (e.g., herpes labial), e posteriormente foi dada a instrução de que iriam realizar contrabalanceadamente dois testes de reconhecimento: um de memória-de-item e outro de memória associativa. Os resultados mostraram melhor memória de destino para os rostos que apresentavam sinais de doença potencialmente contagiosa. Para clarificar se o resultado obtido se deveu a um possível efeito de distintividade ou ao maior alerta aos sinais de doença contagiosa, na Experiência 2 os participantes foram informados que os rostos apresentados pertenciam a atores de uma série televisiva, sendo os sinais de doença produto de uma maquiagem. Os resultados mostraram não haver diferenças de desempenho na memória de destino para as duas condições em comparação. Os resultados são discutidos tendo em conta a relevância da ativação do Sistema Imunitário Comportamental para responder a sinais potencialmente contagiantes.

Keywords

memória de destino, memória associativa, sinais de contágio

Remembering to whom we transmit information during pandemics: The effect of face masks on destination memory

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Considering the global pandemic we currently experience, face masks have become standard in our daily routine. Even though surgical masks are established as a safety measure against the dissemination of COVID-19, previous research showed that their wearing compromises face recognition. Consequently, the capacity to remember to whom we transmit information – Destination Memory - could also be compromised. In our study, through a between-participants design (Experiment 1) and a within-participants design (Experiment 2), undergraduate students have to transmit Portuguese proverbs to masked and unmasked celebrity faces (control condition). Following our hypothesis, participants who shared information with masked celebrities had worse destination memory performance than those who shared information with unmasked celebrities. Also, we observed lower recognition for masked faces compared to unmasked faces. These results were expected since using a surgical mask affects facial recognition, thus making it harder to recognize a person to whom information was previously transmitted. More importantly, these results also support the idea that variables associated with the recipient's face are important for destination memory performance.

Keywords

COVID-19, surgical masks, destination memory, facial recognition

The Internal Attentional Focus: How to Promote a Better Destination Memory

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To remember to whom we transmit information, we rely on destination memory. Previous research showed that worse performance on destination memory occurred when participants shared personal facts (e.g., my age is ...), compared with the transmission of non-personal facts (Gopie & MacLeod, 2009). When personal information is transmitted, the internal attentional focus on the self and the information decreases the attentional resources available to associate those facts with the recipients (Gopie & MacLeod, 2009; Johnson & Jefferson, 2018). Research showed that transmitting non-personal information to faces with distinctive features leads to better destination memory (Barros et al., 2021). In this study, our goal was to observe if transmitting personal information to faces with distinctive features will also lead to a better destination memory. In Experiment 1, participants shared personal facts to faces with and without distinctive features, and results showed no differences in destination memory. The presence of distinctive features did not mitigate the negative effect that the internal attentional focus has on the destination memory. In Experiment 2, our goal was to observe if increasing attentional focus on distinctive faces, namely asking participants to observe and name the distinctive feature, reduces the internal attentional focus, resulting in a better destination memory.

Keywords

destination memory, personal facts, internal attentional focus, distinctive features

Testing the contribution of semantic and perceptual training to the formation of unitized representations

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Unitization is a strategy in which associations are encoded in episodic memory as one unique entity. Unitization allows episodic recognition to rely on familiarity (sense of knowing), instead of recollection (recollecting the associated encoding context) that would otherwise be required to recognize associations. However, little still is known about the mechanisms underlying the formation of unitized representations. Some authors proposed that representations are unitized by being anchored within semantic memory, while others have shown evidence of unitization following perceptual training on meaningless materials. In this study, we aimed to assess the impact of semantic knowledge on the formation of unitized representations. To do so, first we encouraged half of the participants (N=18) to learn a semantic structure (i.e., category) on meaningless materials through a category learning task, while the other half (N=21) focused on simple perceptual information. Then we promoted the formation of unitized representations on materials sharing similar features through an extensive 6-day perceptual training using a visual search task. Memory was tested pre- and post-training. Preliminary results suggest that unitization occurred following training, as perceptually trained items were recognized with greater correct and false recognitions compared with untrained ones, with a corresponding increase in both recollection and familiarity. However, the presence of pre-existing semantic structure (i.e., category) did not improve the formation of unitized representation, as these effects were comparable in both groups, suggesting that unitization occurred in both groups to a similar extent. Hence, these preliminary results support the idea that visual training alone is sufficient to foster unitization.

Keywords

episodic memory, associative memory, semantic memory, unitization, perceptual training, category learning

Object recognition memory interference in healthy ageing: effects of conceptual similarity and set size

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Age-related impairments in episodic memory are often attributed to older adults being more susceptible to interference than their younger counterparts. Prior work with young adults has shown that interference builds up with increased number of items within a stream and with increased conceptual similarity among those items. Here, we aimed at examining how these two factors – number of items and degree of conceptual similarity – contribute to age differences in interference. Young and older participants saw images of objects during an incidental encoding phase. We manipulated the number of images from the same category presented in a stream (sets of 2 vs. 4) and the conceptual similarity between these items (high vs. low). Recognition memory was tested subsequently in an old/new decision task where discrimination accuracy (hits minus false-alarms) was measured. As expected, memory discrimination was better in younger than older adults, for low than high similarity objects, and for smaller than larger sets. Importantly, there was an interaction between group and conceptual similarity such that increased object similarity reduced discrimination in the younger group only. In contrast, the interaction between group and set size revealed that increased number of objects hindered discrimination of older participants only. Together, the results suggest that in healthy ageing, interference emerges with increased number of items due to lower memory capacity, but is not affected by increased conceptual similarity among items, presumably due to lower memory fidelity to discriminate objects from the same category.

Keywords

long-term visual memory, healthy ageing, interference, recognition processes, semantic processing

Increased pre-boundary lengthening does not enhance implicit intonational phrase perception: An EEG study

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Prosodic phrasing is the segmentation of utterances into prosodic words, phonological phrases (sub-clause units like noun phrases) and intonational phrases (whole clauses) based on acoustic cues - pauses, pitch changes and pre-boundary lengthening. The perception of prosodic boundaries is characterised by a positive ERP component, temporally aligned with phrase boundaries - the Closure Positive Shift (CPS). The role of pre-boundary lengthening in boundary perception is still a matter of debate: while studies on phonological phrase boundaries indicate that all three cues contribute equally, approaches to intonational phrase boundaries highlight the pause as the most powerful cue. Moreover, all studies used explicit boundary recognition tasks, and it is unknown how pre-boundary lengthening works in implicit prosodic processing tasks, characteristic of real-life contexts. In this study, we examined the effects of pre-boundary lengthening (original, short, and long) on CPS for intonational phrase boundaries, using an implicit task. Results showed that both original and short showed equivalent CPS effects, while the long set did not elicit the effect. This suggests that pre-boundary lengthening does not contribute to improved perception of boundaries in intonational phrases, and it can be detrimental when unnaturally long. We discuss our findings based on memory-related and sociolinguistic hypothetical factors.

Keywords

prosodic phrasing, prosodic boundaries, closure positive shift, boundary perception, pre-boundary lengthening

Once Bitten, Twice Shy: The Impact of Predictive Validity on Anticipatory Processing During Sentence Comprehension

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There is increasing evidence that readers make predictions about upcoming words during sentence comprehension. However, little research has been conducted to understand if this process is automatic (i.e., if readers always activate a set of associated concepts when there is a sufficiently constraining context) or strategic (i.e., readers only anticipate the expected candidates when it is beneficial for sentence processing). The current study examined whether lexical predictions are modulated by word expectancy and prediction validity of a prior set of sentences. In a one-word moving-window self-paced reading task, 100 participants initially read a set of 120 filler sentences to establish an environment with either high or low predictive validity. Then, both groups read 60 experimental sentences with critical words that were either expected or unexpected. The response times following the expected critical words were faster than after reading the unexpected critical words. This effect was significant for participants who had previously read the highly predictive filler sentences, whereas it was not observed for the group with low predictive validity fillers. These findings suggest that the facilitation of lexical predictions in sentence context may depend on the recent success or failure of anticipatory processing. Readers who have experienced many prediction failures may strategically limit their anticipatory processing. This study adds to our understanding of the benefits and costs of lexical predictions and the processes involved in sentence comprehension.

Keywords

sentence comprehension, lexical prediction, strategic processing, context predictive validity, self-paced reading

The impact of lexical frequency in gender processing

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A differential processing of feminine and masculine nouns is a highly debated topic. Whereas many studies show a preferential processing for the masculine, others point to the other way around or even fail to find such differences. Given these discrepancies, we believe it is important to analyze if such differences are due to the distinct nature of grammatical and natural gender. The present study aimed to examine the representation and processing of both grammatical and natural gender through two lexical decision tasks with native speakers of European Portuguese by manipulating a variable whose interplay with gender in lexical access was not explored enough despite its impact on lexical access: lexical frequency. Thus, gender and frequency were orthogonally manipulated performing four conditions: masculine high and low frequency nouns; and feminine high and low frequency nouns. In the first experiment only nouns of grammatical gender were included whereas in the second one nouns of grammatical and natural gender were considered altogether. Three hypotheses were set up: i) Masculine nouns are recognized faster than feminine when frequency is matched, showing an advantage for this gender that is not explained by its prevalence, ii) masculine nouns are as faster recognized as feminine nouns when frequency is matched, showing and overall effect of frequency, or iii) keeping the frequencies similar, masculine advantages only emerge for nouns with natural gender, perhaps due to the influence of social gender bias, in line with previous studies.
Results will be discussed in light of current theories of visual word recognition.

Keywords

grammatical gender processing, natural gender processing, lexical frequency, visual word recognition

Is L2 morphological processing modulated by non-linguistic variables? A masked priming study

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The role of morphology during the recognition of the second language (L complex words is a hotly debated issue. A recent meta-analysis on masked priming lexical decision studies with bilinguals has shown differences in the way L2 and L1 derived words are processed (Fernandes et al., under review). Thus, whereas significant morphological priming effects were observed during the recognition of L1 words (priming for transparent [e.g., fighter-FIGHT] and pseudo-derived [e.g., corner-CORN] conditions but not for the orthographic control condition [e.g., brothel-BROTH]), no differences across conditions were observed during L2 word recognition. The absence of differences across conditions led the authors to hold that the underlying mechanisms of morphological processing seem to not be the same in L1 and L2. Although interesting, the studies on the processing of L2 derived words are not many and they characterize by a scarce control of linguistic (e.g., cognateness) and individual variables (e.g., L2 proficiency; linguistic profile: individual differences in spelling and vocabulary and in reading fluency) which have been seen to modulate lexical access. Having this in mind, the present research aimed to examine such variables' contribution to the recognition of L2 derived words. To do that, 112 European Portuguese-English non-native speakers with different degrees of L2 proficiency and different linguistic profiles were asked to perform a masked priming lexical decision task in English. English native speakers also performed the same task and worked as a control group. Results will be discussed in light of current theories of bilingual lexical access.

Keywords

non-native speakers, morphological priming, derived words, individual differences

Operationalizing orthographic regularity and consistency in a semi-transparent orthography

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The relationship between orthographic and phonological codes is far from simple in natural orthographies and constitutes one pivotal aspect of the linguistic environment that affects the process of reading and writing acquisition. Inconsistencies in the spelling-to-sound mappings impair visual word recognition by proficient readers and even auditory word perception. The concepts of consistency and regularity have been used to describe the correspondence between orthography and phonology in alphabetic languages, but yet they appear to be dissociated. Here, we operationalized these two concepts to assess spelling-to-sound correspondences in Portuguese, a semi-transparent orthography and provided measures of the degree of consistency (as a continuum) and regularity for a sub-set of words (n = 360) from P-PAL psycholinguistic database, including the stimulus from Snodgrass and Vanderwart's corpus. This preliminary lexical database has potential significance to experimental psychology research that uses words as stimuli and that aims to better control consistency and regularity effects in psycholinguistics.

Keywords

orthographic regularity, orthographic consistency, lexical database

Executive functioning and language in preschool: examining receptive and expressive language, phonological awareness, rapid automatized naming, and letter reading

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The development of language skills requires a range of linguistic abilities together with several cognitive processes such as executive functions (EFs, i.e., a set of skills involved in goal-directed activities, which are crucial for the regulation of thoughts and actions). This study examined the concurrent relationship between EFs and a comprehensive array of language abilities and emergent literacy skills. The sample comprised 82 typically developing children who were attending their last year of preschool. Multiple tasks assessing EFs were used to generate three predictor variables: inhibitory control, working memory, and cognitive flexibility. The language and emergent literacy outcomes included receptive and expressive language, phonological awareness, rapid automatized naming, and letter reading. After controlling for age and gender, findings showed that when the three EFs indices were included in the model the amount of variance explained significantly increased for all the language and emergent literacy outcomes. These results highlighted the potential added importance of assessing EFs in the prediction of language and emergent literacy skills in preschool children.

Keywords

executive functions, language abilities, emergent literacy skills

Interpersonal distance as a measure of approach-avoidance behavior when facing sickness cues

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The distance we keep between ourselves and others without feeling uncomfortable is called interpersonal distance (IPD). IPD might be implicated in pathogen avoidance, as keeping greater distances from those who are (or are perceived as) sick can decrease contamination risk. While some studies have started to investigate this hypothesis, no study to date has used conspicuous disease-connoting cues in faces. Thus, the present study sought to explore whether commonly found facial disease cues (e.g., red nose and facial rash) could modulate participants' IPD behavior. In a computerized version of the paper-and-pencil IPD task, participants (N = 7 were asked to indicate, by moving a sex-matched black silhouette (representing themselves) with the mouse, the distance they would be comfortable taking in a social interaction with a stranger with or without a facial disease cue (represented by a colored avatar with the corresponding face above). Results showed that, on average, participants assumed greater distances towards stranger avatars when they were associated with facial disease cues, compared to control avatars. Furthermore, additional exploratory analysis revealed that, while male avatars were associated with a greater IPD in both conditions, female avatars led to a larger increase in IPD behavior from control to disease conditions. These findings further support the notion of a relationship between IPD and pathogen avoidance, which might reflect approach-avoidance tendencies intertwined with the defensive role of the behavioral immune system. Implications regarding how the threat of contagion can lead to aversive responses towards those who bear facial "disfigurements" are also discussed.

Keywords
interpersonal distance, approach-avoidance, behavioural immune system, disease cues

The effect of proverbs on moral judgment

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Recent advances in the psychology of moral judgment indicate that our everyday moral judgments tend to be guided by intuitions. These intuitions stem from heuristic processing and can be shaped by social factors. However, less is known about the social factors that shape our intuitions and how such influence occurs. Previous research have shown that feelings of familiarity, truth, and fluency can lead to the intuitive processing of stimuli. Since proverbs are typically fluently processed and often perceived as truthful and familiar, our goal was to explore whether proverbs could shape moral intuitions and influence people's moral judgments. A two-response experimental paradigm (N=300) was used to capture participants' responses to others' opinions that condemn or condone immoral behaviors using popular proverbs (compared to non-proverbial sentences carrying the same meaning). Results indicate that, when proverbs align with participants' previous moral beliefs, they increase the strength of participants' moral intuitions ??making their judgments more polarized, confident, and resistant to response revision after reflection. Such cases correspond to situations in which proverbs condemn behaviors that, according to pre-test, are widely considered immoral. However, these effects were not found when proverbs conflicted with participants' previous beliefs (i.e., condoning condition). Our results further suggest that proverbs that trigger higher cognitive ease of processing have a greater impact on people'??s moral judgments.

Keywords:

proverb; popular saying, social influence, moral judgment, metacognition.

Moral Flexibility: Effects of Social Influence on Moral Judgement

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Haidt's (2001) Social Intuitionist Approach to Moral Judgment not only claims for the prevalence of intuitive over reasoned judgments but also for the importance of social influence. However, social influence in moral judgement has been less investigated, which is unfortunate since we rarely make moral judgments in a social vacuum, but rather in interaction with others. Drawing from social influence (e.g., Mercier & Sperber, 2011; Solomon, 1956) and moral judgement research (Bago et al., 2019; Mata, Vega, Ferreira & Vaz, 2020) we explored the impact of others' moral judgments on one's own judgments. We manipulated the credibility (competence) of different social sources (i.e., other respondents) with equal or differing moral views from that of the participants. Furthermore, we used a 2-response paradigm (Thompson et al., 2001) to investigate the dynamics of the impact of others on one's own moral judgments. Our results suggest that depending on the Self vs Other conflict, moral intuitions may progress into judgments without deliberation (low conflict) or people may engage in more reflected reasoning (high conflict) revising their original responses. Subjective confidence on one's own moral judgment mediated this effect.

Keywords

decision-making, moral judgement, social influence

O efeito de decisões moralmente ambíguas nos julgamentos morais

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Os julgamentos e decisões em dilemas morais são sensíveis quer ao processamento de informação interna ativa no momento da decisão, quer a pistas fornecidas pelas situações e acontecimentos à nossa volta. De acordo com a a teoria da manutenção do auto-conceito, ambos os processos podem ocorrer de formas variadas, com efeitos diferentes: a informação processada pode incluir ou não normas morais e as categorias morais que usamos para classificar as situações e acontecimentos exteriores podem ser mais ou menos inclusivas. Este modelo explicaria porque é que na mesma pessoa podem ocorrer comportamentos que consideraríamos morais e imorais sem que isso resulte em dissonância cognitiva e numa revisão negativa do autoconceito. Nesta comunicação relatamos duas experiências que envolvem julgamentos morais feitos após a emissão de comportamentos na tarefa de Frank e Shulze, uma tarefa que facilita decisões moralmente ambíguas. Os resultados mostram que após a emissão de comportamentos moralmente ambíguos os participantes fazem julgamentos morais mais lenientes e tomam decisões menos morais. Estes resultados sugerem (i) que as categorias usadas para julgar da moralidade das situações sofreram algum alargamento e ficaram mais inclusivas para acomodar o comportamento anterior; e (ii) que esse alargamento permanece em decisões morais posteriores.

Keywords

julgamentos morais, corrupção, manutenção do auto-conceito

Learning from failure: How others mitigate our failings

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Contemporary literature celebrates failure as an enhancer of learning, memory and correction. However, recent research has demonstrated the opposite, that failure feedback undermines knowledge acquisition when compared to success or feedback-free conditions (Eskreis- Winkler & Fishback, 2019). Failure seemed to make participants "tune-out" of the task despite being corrective. Two experiments were performed to replicate the tune-out effect and test its limit conditions (total N =540). The effect was fully replicated in experimental conditions similar to the original study denoting its robustness. The second study used the same paradigm but added percentual information about how other participants performed to the success ("You answered correctly") and failure feedback ("You answered incorrectly"). These new details placed the participant's success or failure feedback in a favorable (e.g., "90% of participants got this answer wrong") or unfavorable context (e.g., "10% of participants got this answer wrong"). The tune-out effect disappeared in the favorable failure condition. Contrary to the findings of the original study, both failure conditions had better performances than the feedback-free condition. These results suggest that feedback and its framing are the essential aspects of how failure influences learning.

Keywords

failure, learning, feedback, tune-out, error

The role of object structure in attitude formation

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How does perceived structure and dimensionality of an attitude object impact general attitudes? From person perception literature, we know that dimensionality of knowledge structures impacts attitudes differently. However, less is known when we consider other attitude objects, such as tourist destinations. We approach how attitudes towards tourist destinations relate to the dimensions of its perceived personality. For this, we first assessed which features are related to what the literature suggests as the dimensions of a tourist destination's personality ("exciting", "convivial", "sincerity"). We create and test a set of features/descriptors of a destination (e.g., "There is always a seasonal festival") associated with each of the dimensions. We then test if this dimensionality represents the kind of knowledge structure usually found in person perception, which integrates related features into clusters, imposing memory priority to what violates our expectations. Participants, led to be under either high or low elaboration, were asked to simply memorization or form an impression of a destination with or without a prior expectation about one of its traits. Recall measures show negative traits to have memory priority but no evidence of an incongruent effect. Attitudes were not related to levels of recall of positive or negative information but were modulated by prior expectations. Data is discussed regarding the different integration of information in this type of knowledge structure and the relevance of the dimensionality of object perception for attitudes.

Keywords

attitudes, cognitive structure, dimensionality

Is a man more likely to be credited for a scientific discovery than a woman?

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The number of women finishing an academic degree is rising, with the increased exposure to female scientists likely leading to an increased association between women and science. Stereotypes – like the ones of what a scientist looks like – can affect both abilities and performance. Past research has analysed gender-science stereotypes with more explicit measures such as questionnaires measuring attributes stereotypically associated with the male and female gender. The present research tried to implement implicit methodologies to assess stereotypes regarding women and men in scientific roles. The use of implicit methodologies is important since they allow for a more automatic assessment to happen, with the decision-making process being less influenced by strategic decision-making factors. In this work, we tested gender-science stereotypes by taking advantage of the science misinformation and fake news context. Specifically, participants were asked to assess the likelihood of 21 science news pieces, mentioning a scientific breakthrough, being true using a slide-type scale (from 0% to 100% chance of it being true). All the news pieces were true and went through the following conditions: as being discovered by a male principal investigator, by a female investigator, and gender neutral, by mentioning a research team. Three lists were built to counterbalance the news by these conditions. Participants were randomly assigned to a list and in each list, the news were presented in a randomised order. Results were analysed using linear-mixed models on R software.

Keywords

gender, fake news, inclusion, science, stereotypes

Attribution of Intentions in Men and Women: An ERP Study

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Previous studies have shown that the process of attribution of intentions starts as early as 200ms post-stimulus and continues up to 650ms, having been associated with an ERP (event-related potentials) marker called intention ERP effect. In previous investigation we found that this effect comprises two distinct components: P200 80-250ms) and P300 (250-400ms). The present study builds on these studies, using ERPs to investigate electrophysiological markers of attribution of intentions based on a non-verbal social cognition task, while testing for differences in the processes of attribution of intentions between men and women. Forty-one university students (20 men) performed a comic-strip task that represented an intentional action (AI), a physical causality with human characters, or a physical causality without human characters, while their electroencephalographic signal was recorded. There were no differences in behavioral performance between genders. We found a bilateral posterior positive component with greater amplitude in the AI condition, comprising the P200 and P300 components, corroborating previous studies. No differences were observed between genders for the P200 component. Amplitude of the P300 component did not differ between genders in the AI condition, yet it was significantly higher in women in the two other conditions. Moreover, the ERP morphology was more consistent across conditions in women than in men. These results suggest that women employ greater efforts to process and integrate information under different conditions.

Keywords

social cognition, attribution of intentions, P200, P300, gender

Crenças sobre a relação quantidade-qualidade.

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Crenças leigas têm um papel preponderante numa série de processos psicológicos (e.g., tomada-de-decisão, mudança de atitudes). Sendo as mesmas de conteúdo variado, é possível deter crenças discordantes entre si, tais como “quanto mais melhor” e “quantidade não é qualidade”. Num estudo experimental, promovemos a aprendizagem de uma relação positiva, negativa, ou nula entre qualidade e quantidade, analisando o subsequente impacto na concordância/utilização das crenças “quanto mais melhor” e “quantidade não é qualidade” (de forma implícita e explícita). Participantes avaliaram 40 produtos numa plataforma fictícia em uma de três condições: 1) associação positiva entre produtos com mais(/menos) características e melhor(/pior) qualidade do produto (primada através de feedback com ratings de utilizadores da plataforma após cada avaliação); associação negativa entre produtos com mais(/menos) características e pior(/melhor) qualidade do produto; 3) condição controlo, na qual ambas as associações estavam presentes em igual proporção. De seguida, os participantes criaram o seu próprio anúncio para um novo produto, selecionando quantas características achassem adequadas (medida implícita), e, por fim, indicaram a sua concordância com as duas crenças (medidas explícitas). Os resultados revelaram uma aprendizagem das crenças primadas, evidenciada através do grau de concordância explícita com as crenças (observando-se, no entanto, independentemente da condição, maior concordância com a crença "quantidade não é qualidade" comparativamente a "quanto mais melhor"). Não foram encontradas diferenças entre condições no número de características escolhidas para o anúncio, tendo todos os participantes seguido a regra "quanto mais melhor". Discutimos como estes resultados informam a natureza destas crenças e a sua dissociação.

Keywords

aprendizagem implícita, crenças leigas, quantidade-qualidade

Reasoning in climate change contexts: Risk literacy and climate change risk perception matters

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Climate change presents risks for the natural environment and human populations. Yet, how people perceive these risks and how they factor this information when making decisions is still unknown. Reasoning about risks requires risk literacy which is the accurate interpretation and use of information about probabilistic events. However, risk literacy is not the only factor that can play a role in how individuals integrate information to make decisions: heuristics, personal values, experience, intuitions, and emotional aspects can also influence problem-solving. Accordingly, the goal of the present project was to assess which factors predict how well people reason with probabilistic information related to climate change. Participants (N = 205) first solved simple arithmetic problems, then seven probabilistic problems with neutral content, followed by seven probabilistic problems with climate change content. Next, they answered scales about their beliefs, risk perception, knowledge, and experience with climate change. Finally, they responded to questions about their worldviews, political orientation, and socioeconomic status. Multiple regression analyses indicated that performance in the neutral problems was explained by arithmetic ability. Problem-solving in a climate change context was explained not only by arithmetic and problem-solving with neutral content but also by climate change risk perception. All other variables were not predictive of problem-solving. These results show that the more concerned and attentive to the risks posed by climate change, the better participants could reason with probabilities in a climate change context.

Keywords

problem solving, numeracy, risk literacy, risk perception, climate change

Effect of the psychedelic N,N-Dimethyltryptamine on brain connectivity and behavior

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There is a growing number of studies describing promising data on the therapeutic potential of psychedelics, but their neural mechanisms of action still need to be understood. The modulation of social cognition is suggested as a possible mechanism contributing to its potential clinical efficacy. Resting-state functional magnetic resonance imaging (rs-fMRI) is a useful method for detecting brain activity and connectivity changes during psychedelic-induced states. Thus, we investigated the effects of a serotoninergic psychedelic - N,N-Dimethyltryptamine (DMT) - on functional connectivity in brain areas relevant to social cognition, namely the Theory of Mind (ToM) network, using a within-subject design. The subjective experience was collected by the Hallucinogen Rating Scale (HRS). We acquired rs-fMRI data from 11 healthy and DMT-experienced users (4 female, 7 male) who inhaled the substance (DMT or placebo) before acquisition. Functional connectivity was measured using seed-to-voxel analysis for supramarginal gyrus – a ToM brain region which activity is altered in clinical populations with social cognition deficits. Compared to the control condition, DMT increased supramarginal gyrus connectivity with the precuneus and cingulate gyrus. Neurobehavioral correlations showed a positive correlation between connectivity between supramarginal gyrus and precuneus and the Intensity and Volition subscales of HRS, which measure the strength of the overall experience and the subject's capacity to willfully interact with the "self" or environment, respectively. These findings show that DMT alters brain connectivity in social cognition circuits, thus advancing our understanding of the neural mechanisms which may underlie the psychedelic experience and its potential impact on social functioning.

Keywords

psychedelics, N,N-Dimethyltryptamine, social cognition, pharmacoimaging, fMRI

Frontal Alpha Asymmetry and its Relationship with Depression and Cognition: A Cross-Sectional Study in Older and Younger Adults

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High levels of right cortical activity have been related to the processing of negative stimuli, while high levels of left cortical activity have been linked to that of positive stimuli. The EEG-derived Frontal Alpha Asymmetry (FAA) reflects the difference in overall activity in the alpha frequency band between given left and right-hemisphere electrodes. Thus, some studies have pointed out FAA as a potential marker of depression. However, there were some contrasting results, especially at older ages. Therefore, this study aimed to explore different indices of FAA and clarify their relationship with depression and cognition at different ages of the adult lifespan. Thirty-eight older adults (OA; 65.8% female; Mage = 79.61, SD = 7.16) and 60 younger adults (YA; 55.0% female; Mage = 22.40, SD = 3.68) completed a cognitive and emotional assessment and then underwent a resting-state EEG recording. FAA values were calculated using F3 and F4 and F7 and F8 electrode pairs. Results showed that OA presented higher FAA than YA on F4-F3 electrodes, without differences on the F8-F7 pair. OA also presented higher depressive symptoms than YA but lower scores on global cognition and working memory. Regression analysis showed that BDI-II total and somatic subscale scores predicted FAA on electrodes F8-F7. Conversely, global cognition and working memory scores were predictors of FAA on electrodes F4-F3. Overall, these results bring clarity about FAA patterns at different ages and open the discussion about the relationship between depressive symptomatology and cognition on frontal cortical imbalances.

Keywords

frontal alpha asymmetry, depression, cognition, aging

Older yet Sharp: No General Age-Related Decline in Focusing Selective Attention

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Selective attention is among the cognitive functions assumed to decline with aging. Yet, the evidence for this attentional deficit is still mixed. Given that selective attention can operate on space, features, and mental representations, one possibility is that attentional selection in these different domains follows diverging trajectories across the lifespan with some, but not all domains, showing an age-related decline. To assess this possibility, we evaluated the benefits of attentional focusing in a battery of 11 tasks: three spatial attention tasks, four feature-based attention tasks, and four tasks measuring attention to working memory contents. A large sample of young (n = 170) and older adults (n = 174) completed the full attention battery. This allowed us to address two main questions. First, whether aging effects are consistent across different tasks in each domain. Second, whether there is a domain-specific or general age-related decline in selective attention. Younger and older adults benefited from focusing attention on spatial locations, features, and memory representations. Yet, at the level of single tasks results were slightly mixed: within the same domain, some tasks showed a decline, whereas others showed improvement with aging. However, on average, the benefits of focusing attention were of similar magnitude across younger and older adults. These results are inconsistent with the claim that aging is associated with either domain-specific or general deficits in selective attention.

Keywords

cognitive aging, attention, working memory, Bayesian mixed-effects models

Assessing Executive Functions in Early Infancy

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Executive functioning (EF), an umbrella term used to define a set of processes responsible for purposeful and goal-directed behaviors, is assumed to play a critical role in cognitive functioning, behavioral and emotional control, and social interaction. Even though these processes are present early in life and improve throughout childhood, knowledge about how they develop in early infancy and how they relate to each other is scarce. This occurs, at least in part, because assessing EF in children aged 12 months or less is particularly challenging and the currently existing tasks are designed to assess EF skills only at later stages in life. Nevertheless, some experimental paradigms already found in the literature aim to unveil the foregrounds of EF development, by testing infants and their most basic forms of EF (e.g., response inhibition). Some of these tasks are based on visually appealing stimuli targeting, among others, attentional shifting capabilities while, very often, recurring to the use of state-of-the-art techniques. Thus, not rarely, behavioral data is supported by some indirect measurements (e.g., eye-gaze patterns). As this topic is gaining further relevance in research, not only to get a deep understanding of the developmental trajectory of these skills, but also to inform best educational and clinical practices (i.e., aimed to boost EF skills and/or to detect atypical EF development trajectories), in this work we provide a review of the most recent advances on EF assessment in early infancy, as well as the identification of their perks and possible pitfalls.

Keywords

executive functioning, early Infancy, child development

Investigating familiarity effects on cognitive control using the Simon task

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Recent evidence has suggested that the monitoring system of cognitive control could be sensitive to changes in ease-of-processing and use it as a cue to regulate control mechanisms. In two experiments, we relied on the Simon task to activate control over the irrelevant influence of spatial stimulus-response congruence. Moreover, within these experiments, we have manipulated ease-of-processing by varying stimulus familiarity (words and nonwords with high and low familiarity). On Experiment 1, we have used a perceptual Simon task in which participants only had to respond to the colour of the displayed stimulus, rendering irrelevant stimuli semantics. Results documented the presence of spatial stimulus-response congruence effects on reaction times (RT), with participants performing slower on incongruent trials. Higher RT for nonwords were detected, but we have not found effects of familiarity or any qualification of the congruence effect. On Experiment 2, we explored the semantic dimensions of the materials by adding a lexical decision to the Simon task. This data was analysed using signal detection theory and complemented with RT. Congruence effects were investigated within each parameter. Although we have found effects of familiarity on hits, false alarms and their respective RTs, the results again show no consistent effect of familiarity on congruence. We further discuss the results of both experiments and their implication for control within the Simon task.

Keywords

control, familiarity, conflict, ease-of-processing

Estarás atento(a) em qualquer momento do dia? Efeito de (as)sincronia em tarefas atencionais – um estudo com universitários

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O cronótipo refere-se às diferenças individuais nas variações circadianas, podendo definir-se em três tipos principais: o tipo matutino (o pico máximo de atividade do indivíduo decorre nas primeiras horas do dia); o tipo vespertino (o pico máximo de atividade ocorre ao final da tarde/noite); e o tipo intermédio (o pico de atividade decorre em horas intermédias do dia). O principal objetivo desta investigação foi analisar as diferenças no desempenho atencional de estudantes do ensino superior quando estes realizaram tarefas de atenção no período ótimo (sincronia) e no período não ótimo do dia (assincronia). A amostra foi constituída por estudantes da Universidade Portucalense. A investigação dividiu-se em duas fases: 1) Preenchimento do Questionário de Horne & Östberg 976; versão portuguesa: Silva et al., 200 que permitiu a classificação dos participantes nos 3 tipos de cronótipo; 2) Aplicação de tarefas atencionais ao grupo dos participantes matutinos e vespertinos (parte experimental do estudo): cada participante, de forma individual, realizou um conjunto de tarefas atencionais (e.g., tarefa de atenção dividida) no seu momento síncrono e no seu momento assíncrono. A ordem de manipulação dos momentos (sincronia vs. assíncrona) foi contrabalanceada entre participantes. Todos os participantes realizaram as mesmas tarefas nos dois momentos (síncrono e assíncrono) com um intervalo de cerca de 1 semana entre eles. Nesta comunicação são apresentados resultados preliminares desta investigação, discutidos à luz das teorias existentes.

Keywords

cronótipo, sincronia, assincronia, atenção, estudantes universitários

Sala decorada – aprendizagem danificada? Um paradigma para o estudo da influência de elementos (ir)relevantes da sala de aula

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A distração visual é amplamente estudada com diversos tipos de tarefas e em diversos grupos etários. Contudo, a influência que um ambiente circundante pode ter no desempenho cognitivo dos indivíduos tem sido mais recentemente explorada, mas ainda com muitas questões por responder. Rodrigues e Pandeirada conduziram estudos com crianças dos 8-12 anos (2018) e com adolescentes dos 13-17 anos (2019) com o objetivo de perceberem a influência do ambiente visual circundante no desempenho obtido em tarefas cognitivas básicas (e.g., blocos de corsi e go/no-go). Os resultados indicaram que os elementos visuais presentes no ambiente circundante influenciaram o desempenho dos participantes: no ambiente com alta carga visual os participantes apresentaram resultados inferiores quando comparados com as tarefas realizadas no ambiente sem elementos visuais. Contudo, pouco se sabe sobre o efeito de ambientes visuais circundantes, quando os elementos visuais estão relacionados ou não relacionados com tarefas de aprendizagem escolar. O objetivo principal deste projeto foi perceber o efeito do ambiente visual circundante no desempenho obtido por crianças (idade escolar: 7-10 anos) em tarefas escolares. Para o efeito, pretendeu-se: 1) Manipular o fundo/paredes da sala de aula com diferentes elementos visuais (elementos relacionados vs. não relacionados com os conteúdos a aprender); 2) Perceber o efeito dessa manipulação ambiental no desempenho obtido por crianças dos 7 aos 10 anos de idade (ensino básico) em tarefas escolares. Neste poster apresenta-se o paradigma experimental utilizado neste projeto e alguns resultados preliminares, discutidos à luz das teorias existentes.

Keywords

ambiente visual circundante, aprendizagem escolar, elementos relevantes, elementos irrelevantes, crianças

Cognitive learning by construction play

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Children's play activities impact their learning and development. Construction Play is an example of a type of play that requires the child to explore the material, use spatial-visual perception skills, and even working memory, which are, for instance, believed to be linked to better performance in mathematics. With a focus on construction play and based on the Lego Construction Paradigm of Richardson et al. (2004), children, from 5 to 7 years, were first given a sheet of paper with instructions for a Lego construction. Half the children also accessed Lego bricks to attempt the construction, while the other half only studied the instructions. After understanding and familiarizing with the instructions, they were challenged with new constructions, of increasing difficulty. One of our goals was to assess if the type of initial training (with or without access to bricks) affected the performance on other Lego constructions. Additionally, we were interested in seeing if training influenced their subsequent reliance on instructions. To that end, some children built the new constructions while having access to the instructions, while other children only had access to the instructions prior to construction, which then had to be completed from memory.

Keywords

construction play, training, instructions, impact

The psychology behind packaging design

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Psychology plays a crucial role in design, and many researchers have investigated what makes a packaging attractive. It is through the packaging that the consumer has, most of the time, the first contact with the product. The packaging communicates first-hand the content and purpose of the product, and has as a main scope to capture the attention of potential consumers. This attention grabbing done by the product packaging is achieved through different visual, olfactory and/or tactile features that are carefully chosen, such as color, dimension, shape, smell, and texture. Therefore, the aim of this study is to investigate the effect of the human body shape, both male and female, on packaging attractiveness, ergonomics, people's perception of the product, the attention gathered, and the decision-making process. To accomplish it, we manipulated water bottles. More specifically, we used the standard measurements of a 33cl water bottle as a basis, and we developed ten silhouettes of the human body – five females and five males. The different bottles were then created by manipulating only the shape, keeping all the other variables constant, such as color, volume, and texture. For the female silhouette, the waist-to-hip ratio (WHR) was manipulated (.5, .6, .7, .8, and .9), whereas for the male silhouette, the shoulder-to-hip ratio (SHR) was manipulated .3, 1.45, 1.6, 1.75, and 1.9). Research has shown that women tend to be considered more attractive when their waist-to-hip ratio is closer to .7, as they are seen as healthier and more fertile. Thus, we expect that the feminine water bottles with the ideal WHR will be rated as more attractive, have better ergonomics, be perceived as having better quality, gather more attention, and be chosen more often than the water bottles with WHRs more distant to .7. Research has also shown that the ideal men shoulder to waist ratio (SWR) is 1.6, a derivative of the Golden Ratio, the key to human perception of beauty and attraction. The closer the ratio is to a 1.6, the more perfectly proportioned the body seems, and the healthier and stronger the man is perceived. Thus, we expect that the male water bottles with a SWR of 1.6 will be rated as more attractive, have better ergonomics, be perceived as having better quality, gather more attention, and be chosen more often than the remaining masculine bottles. The most innovative aspect of this study is the fact that, in addition to understanding how the human figure has an impact on consumer perception and decision-making, it explores both the female and male body shapes. Results will contribute to knowledge in different disciplines, including evolutionary psychology, social psychology, and design. They also have practical implications.

Keywords

packging design, ergonomics, perception, evolutionary psychology

Analysis of spontaneous blinking behavior while viewing video clips with sexual and physical violence against women: an eye-tracking study

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Videos displaying interpersonal violence, including sexual violence against women, were shown to trigger both appetitive and aversive emotional responses, being accompanied by behavioral and physiological changes. Eye blinking has been considered a non-invasive indicator of such responses, although only a few studies have analyzed spontaneous blinking behavior during the visualization of interpersonal violence contents. Accordingly, this study was aimed at examining emotional responses toward (sexual)violence using blinking behavior as a proxy of emotional response. Thirty men and 30 women were randomly presented with three 40-second video clips, depicting: 1) sexual violence (a woman being raped by a man), physical violence (a woman being physically attacked by a man), 3) non-violence (non-violent man-woman interaction). Eye blinking behavior was continuously recorded using the Gazepoint GP3 HD eye tracking system at 150Hz, while pleasantness, arousal, and perceived violence were measured by 9-point Likert rating scales. A significant increase blink rate was found for the video clips depicting violence compared with the non-violent video clip, regardless of gender. However, no significant differences were found for blink duration. As expected, videos with sexual or physical violence were perceived as more violent, unpleasant, and arousing for both men and women. These results indicate that blink rate was modulated by the violent content (regardless of violence type), suggesting that it might be related to possible stimulus rejection and initial precautionary defense response.

Keywords

blinking behavior, sexual violence, violent content, eye tracking

Self-esteem across the Mentrual Cycle

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Self-esteem is nowadays a much-discussed topic all over the world. However, despite having its importance globally acknowledged, little is known about what exactly the ultimate purpose of self-esteem is. According to the sociometric Theory, self-esteem entails a biological device, working as a social barometer, allowing a constant monitorization of the odds of rejection. More recently, it has been theorized the existence of multiple barometers depending on the kind of relationship in cause. Concerning romantic relationships it is thought that the odds of rejection are directed related to reproductive fitness. In women the reproductive fitness is linked to fertility markers. However, fertility is not constant across the menstrual cycle, which might be translated into temporary a variation on women self-esteem. Therefore, the main goal of this study was to ascertain and understand, from an evolutionary standpoint, the existence of eventual fluctuations in self-esteem levels throughout the menstrual cycle. For that, we used both explicit and implicit measures of self-esteem. In addition, we also assessed both trait and state self-esteem. Fifty-two female participants completed three self-esteem tasks in both low and high fertility phases. More specifically, participants completed the Rosenberg Self-Esteem Scale and the State Self-Esteem Scale (explicit measures), as well as the Error Based Affective Priming Task (implicit measure). Preliminary results support our main prediction that participants show higher levels of self-esteem during ovulation than during menstruation, but only when state measures are used.

Keywords

menstrual cycle, self-esteem, sociometric theory

How couples experience their intimate relationship after cancer diagnosis?

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Cancer diagnosis and consequent treatment represent a challenge to patients and their partners, since they can lead to daily changes as well as to changes in the intimate relationship. The present study aims to investigate how couples experience their relationship after cancer diagnosis. Specifically, we intended to investigate if there are differences between both members of the couple regarding the relationship quality, sexual satisfaction and intimacy, as well as to analyze if these variables are correlated. The sample comprised 35 female (35.70%) and 14 male 4.30%) cancer patients and their partners (N = 98). Participants completed a demographic questionnaire, questions regarding their perceived physical attractiveness, a clinical information questionnaire, the Perceived Relationship Quality Components (PRQC) Inventory, the Personal Assessment of Intimacy in Relationships Inventory (PAIR), and the Self-Esteem and Relationship Questionnaire (SEAR). Results showed that there were no differences between the patients and their partners regarding their perception of their relationship quality. However, we found that the partners were more satisfied with their sexual functioning than the patients, and that the patients perceived their relationship has having more intimacy when compared to their partners. Before the diagnosis, both patients and their partners rated themselves similarly regarding physical attractiveness, but after the diagnosis the partners assessed themselves as more attractive than the patients did. Additionally, the variables studied were found to be correlated, which means that the higher participants perceive their relationship quality, the more sexually satisfied they feel in their relationship, and the greater is their perception of intimacy.

Keywords

cancer, couples, relationship quality, sexual satisfaction, intimacy

Discerning the effects of mind wandering and other off-task thought phenomena on musical creativity: A behavioural study of jazz improvisation

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Mind wandering (MW) is a prevalent and ubiquitous phenomenon (Smallwood & Schooler, 2015) that despite its negative effects on cognitive processes such as working memory, sustained attention, or response inhibition, has found in later years increasing evidence that it could play a key role in creative cognition. While several studies suggest that MW benefits creativity if it occurs in the incubation period of a creative problem-solving task (Baird et al., 2012; Leszczynski et al., 2017), it remains unclear if MW during the course of a creative task does benefit the real-time expression of creative behaviour (Hao et al., 2015). Musical improvisation provides an ecologically useful framework for studying the real-time effects of MW on creativity. Indeed, a recent preliminary study by the present authors suggested that MW during a jazz improvisation task enhanced the creativity of musical improvisations, compared with improvisation during on-task attention (Palhares, Branco & Gonçalves, 2021). Here, we intend to replicate these findings with a bigger sample size and a more refined experience sampling methodology that not only captures mind wandering, but also other off-task thought phenomena such as mind blanking and task-related interference. Hence, the second goal of the present study is to discern the impact of each off-task phenomena on musical creativity. An estimate of 30 jazz musicians (piano, guitar, double-bass, voice, vibraphone, saxophone, trumpet and violin) will undergo a series jazz improvisation tasks interweaved with random experience sampling probes. We expect to replicate previous findings of MW-associated increments of musical creativity, but also to understand how other off-task phenomena like mind blanking and task-related interfere with improvisatory performance.

Keywords

mind-wandering, creativity, music

Portuguese Translation and Validation of The Flow State Scale-2: A Pilot Study of The Psychometric Properties and Factor Structure in Musical Improvisation

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Flow can be defined as a multidimensional construct, in which a person is completely focused and involved in the here and now when performing a task (Jackson & Eklund, 200. This construct is characterized as an experience of complete absorption, concentration, loss of self-consciousness, and time transformation during an activity, contributing to a person's overall well-being, performance, and creativity (Chirico et al., 2015). Several scales evaluate this construct, one of which is the Flow state scale 2 (FSS-, a self-report instrument that assesses flow as a state and is generally used when studying sports, and fewer regarding work and music (Chirico et al., 2015). In the music domain, flow was identified as a mental process that occurs during musical improvisation (Biasutti & Frezza, 2009). Moreover, flow is seen as an optimal experience and is thought to have a key role in motivation, something that musical artists seek when improvising (Biasutti & Frezza, 2009; Nakamura & Csikszentmihalyi, 2014). Therefore, more studies should be conducted to cement the relationship between music and flow. Regarding the Portuguese population, studies on the Flow Dispositional Scale 2 were conducted with good results (Gouveia et al., 201. The translation and validation of the FSS-2 for the Portuguese population will allow a more comprehensive understanding of future flow research in Portugal. Therefore, the present study aims to translate and validate the FSS-2 for the Portuguese population. This will be achieved by inviting music students and professionals to complete the FSS-2 scale after performing a musical improvisational task.

Keywords

flow state scale, psychometric properties, musical improvisation, Portuguese population

Efeito de produção na elicitação de memórias falsas: Estudo exploratório com o paradigma DRM

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As memórias falsas são entendidas como erros ou distorções da memória, ou seja, remetem para a recordação de informações de eventos que nunca ocorreram, de situações não presenciadas, de lugares jamais vistos e ainda, a recordação alterada de material verbal simples, como listas de palavras. Neste estudo aplicamos o paradigma DRM que consiste em um procedimento experimental com a apresentação de listas de palavras, associadas a um mesmo tema usualmente designado como item crítico. Estas listas de palavras devem ser memorizadas e sujeitas a uma tarefa de memória que, nosso estudo, foi uma tarefa de evocação livre. Com a aplicação deste paradigma é frequente os participantes recordarem algumas palavras da lista apresentada, mas também o item crítico a que não foram expostos (memória falsa). Nesta investigação, testamos de forma exploratória o papel do efeito de produção, ou seja, a leitura em voz alta ou em silêncio, das palavras apresentadas, na elicitação de memórias falsas. Manipulamos também a metade da lista que foi sujeita à leitura em voz alta: 1ª metade (constituída por 6 palavras mais associadas ao item crítico); ou 2ª metade (constituída por 6 palavras menos associadas ao item crítico). Os resultados mostraram um efeito de produção robusto e significativo, ou seja, as palavras lidas em voz alta foram melhor codificadas e, assim, recordadas em maior número do que as palavras lidas em silêncio. No entanto, a produção de palavras mais ou menos associadas ao item crítico não desencadeou qualquer efeito na evocação do item crítico.

Keywords

efeito de produção, paradigma drm, memórias falsas

Testes de retenção sem intervalos entre ensaios

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Uma forma comum de estudar memória em animais envolve o treino de discriminações. Por exemplo, numa tarefa de discriminação temporal, em função da duração de um estímulo inicial, um de dois estímulos tem de ser subsequentemente escolhido. Posteriormente, é introduzido um intervalo de retenção entre o estímulo inicial e o momento da escolha. Estudos anteriores mostraram que características do intervalo entre ensaios (ITI), como a duração ou semelhança com o intervalo de retenção, podem afetar o desempenho neste tipo de tarefa. No presente estudo, pombos foram reforçados por escolher um estímulo de uma cor (verde) quando uma luz era apresentada por 3 segundos (duração curta), e um estímulo de outra cor (vermelho) quando a luz era apresentada por 9 segundos (duração longa). Para analisar os efeitos do teste de retenção sem a possível influência do ITI, não houve nenhum intervalo a separar os ensaios em toda a experiência. O teste de retenção teve duas condições: o intervalo de retenção (que variou entre 0 e 20 s) podia ser iluminado ou não. No teste com intervalos de retenção não iluminados, as funções de retenção das duas durações tenderam para a indiferença. No teste com intervalos de retenção iluminados, os pombos mostraram preferência pela opção associada à duração curta.

Keywords

intervalo entre ensaios, correspondência à amostra, pombos, discriminação temporal, memória

Sublinhado e reconhecimento de palavras: Efeito sumativo na memória

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O sublinhado é uma técnica amplamente utilizada pelos estudantes. A investigação sobre a utilidade do sublinhado tem sido escassa e com resultados inconsistentes. Recorrendo a três experiências, esta comunicação tem como objetivo explorar o papel do sublinhado na memória, nomeadamente a sua eficácia no reconhecimento de palavras. Na Experiência 1, baseada num desenho intra-sujeito tal como todas as outras, os participantes foram instruídos a ler em silêncio (grupo de controlo) e a ler em silêncio e sublinhar palavras (grupo experimental), realizando de seguida um teste de reconhecimento. Os resultados mostraram maior reconhecimento para palavras sublinhadas, do que para palavras lidas apenas em silêncio. Para perceber se a pista percetiva (sublinhado) sem o envolvimento motor do ato de sublinhar é suficiente para produzir vantagens na memória, foi realizada a Experiência 2. Os participantes foram instruídos a ler silenciosamente palavras sublinhadas (sublinhado passivo) e também palavras sem sublinhado. Os resultados mostraram uma proporção maior de palavras reconhecidas previamente apresentadas com sublinhado, do que palavras sem sublinhado. Finalmente, na Experiência 3, os participantes realizaram o movimento de sublinhado (sem cor) sobre metade das palavras e apenas leram a outra metade das palavras. Os resultados mostraram mais uma vez que o simples ato de sublinhar, mesmo que sem cor, melhora a capacidade de reconhecimento. Os resultados das três experiências sugerem um efeito positivo do sublinhado na memória, contribuindo para o aumento do reconhecimento de palavras. Esse efeito pode ser explicado pela distinção associada ao sublinhado.

Keywords

sublinhado, memória, reconhecimento, distintividade

Comparing experimenter-directed with self-generated forgetting

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Most experimental paradigms used in the study of memory involve a study phase devoid of error. However, learning through the Internet includes a strong selective component. It is necessary to evaluate the validity of each piece of information found online before deciding whether it is relevant and should therefore be retained. In this way, learning often occurs in a noisy environment. To explore the consequences of these selective requirements for learning, we decided to adapt the paradigm of directed forgetting. In this modified paradigm we ask the participants to remember, forget words depending on whether they belong to certain ad hoc categories. In this poster we extend the work presented by Garcia-Marques, Barros & Palma (this conference) by adding better controls and comparing the results of self-generated remembering and forgetting (according to their classification into ad hoc categories) with experimenter-provided cues to remember and forget of the same work. The results suggest that the level of elaboration required in the identification of what words to remember or to forget affects the efficacy of forgetting attempts. The results suggest that selective learning is harder in noisy learning environments.

Keywords

learning, memory, directed forgetting

Aprender com a recordação: O impacto da estrutura de teste nos efeitos inibitórios de part-list cueing

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Na investigação em memória tipicamente pedimos às pessoas que memorizem uma lista de palavras e, mais tarde, que a recordem. Receber parte dessa lista como pista antes do teste de recordação parece inibir a recordação comparativamente a não receber nenhuma pista (Slamecka, 1968). A investigação também tem demonstrado que as pessoas aprendem a estrutura dos testes e adaptam as suas estratégias de codificação e recuperação com a experiência (Garcia-Marques et al., 2015). Com base nesta ideia, levantámos a hipótese de que, quando as pessoas recebem repetidamente parte da lista como pista, aprendem esta estrutura de teste e são capazes de orientar as suas estratégias: ignorando as pistas e eliminando o efeito nefasto que apresentar parte da lista como pista tem na recordação. Realizámos dois estudos onde comparámos a recordação quando, depois de estudar uma lista de palavras, foram feitos a) quatro testes de recordação livre (condição controlo), b) quatro testes de recordação com parte da lista como pista, sendo estas pistas compostas sempre pelas mesmas palavras (condição estrutura de teste constante); ou c) as palavras usadas como pista variavam de teste para teste (condição estrutura inconstante). Verificámos que, quando a estrutura de teste foi inconstante, apresentar parte da lista como pista inibiu a recordação comparativamente aos testes de recordação livre. Porém, quando a estrutura de teste foi constante, as pessoas aprenderam a ignorar as pistas e os seus efeitos inibitórios foram atenuados, sugerindo que a recuperação parece ter sido usada como experiência de aprendizagem.

Keywords

part-list cueing, recuperação, memória, aprendizagem

Learning from errors: Retrieval promotes the correction of memory errors in adults and adolescents

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When perfect learning has not yet been attained, errors can enhance future learning if followed by corrective feedback. Research on memory updating in younger adults has shown that after retrieval, memory becomes labile and prone to change, generating a rich context for the incorporation of feedback. We support this hypothesis and extend it to adolescents in a study using sentences that include pragmatic implications, commonly used for the study of false memories. We compared error correction between young adults (22-27 years old) and adolescents 2-17 years old), taking into account source monitoring and metamemory processes. Corrective feedback was more effective when given after errors that were committed during active retrieval rather than during the passive reading of information, to the same extent for adults and adolescents. Adolescents were as accurate as younger adults in identifying the source of the memory errors, and demonstrated similar performance on metamemory measures. We highlight the importance of using active retrieval strategies in educational practice, even in contexts where students might be prone to making mistakes.

Keywords

memory, learning, retrieval, false memories, feedback