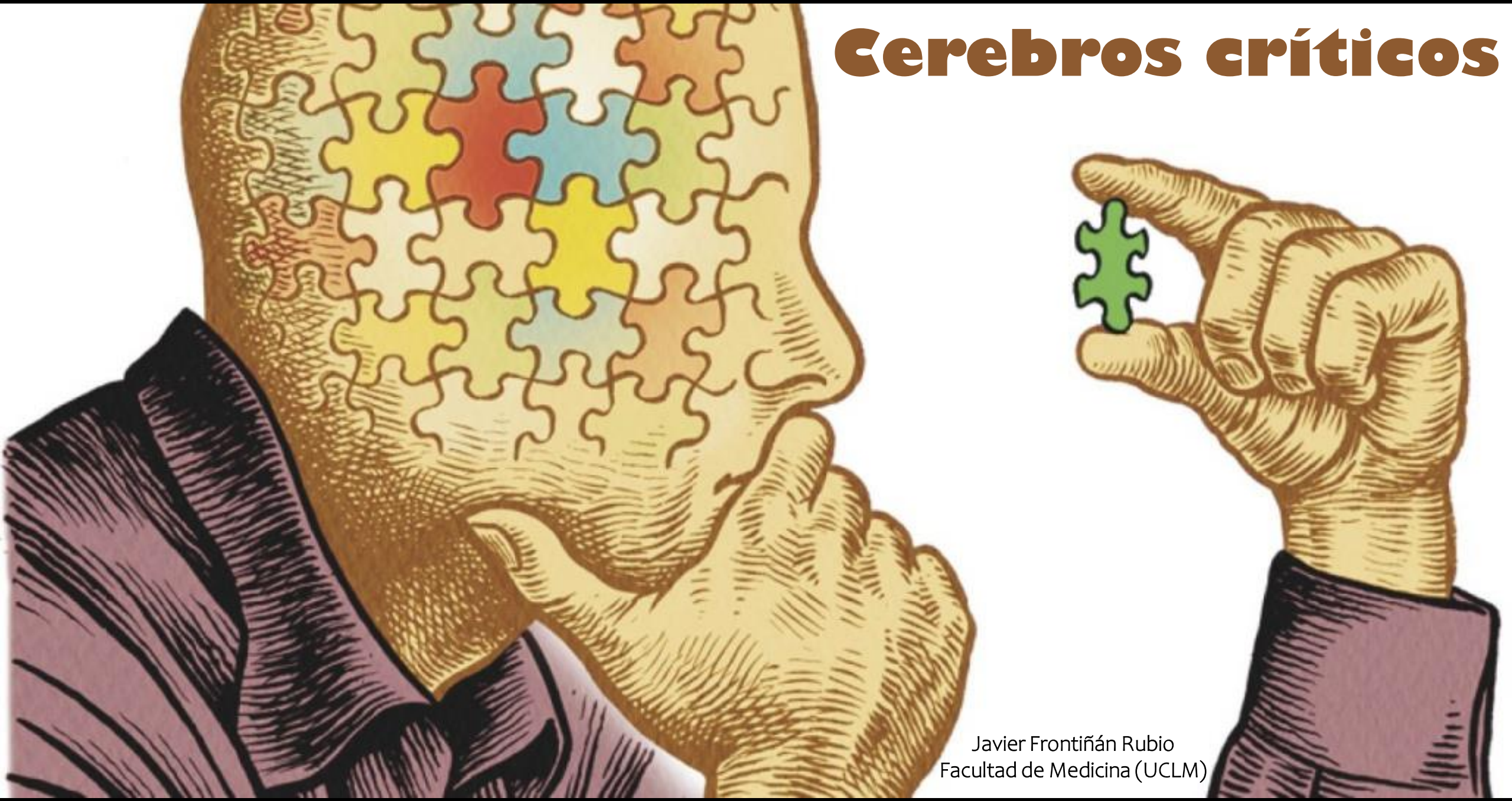
Cerebros críticos



Javier Frontiñán Rubio
Facultad de Medicina (UCLM)

Declaración de Conflicto de Intereses:

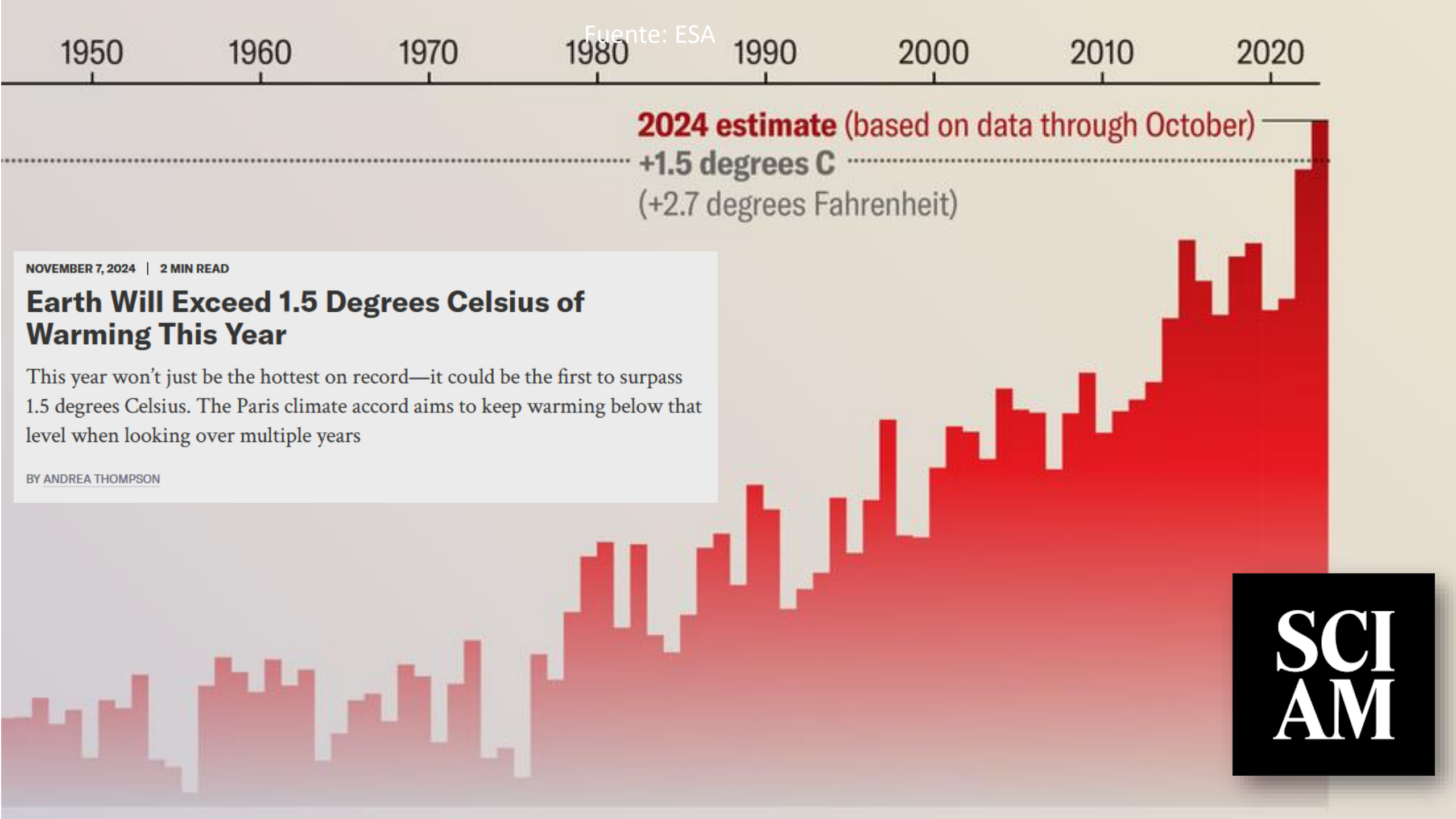
No tengo ningún conflicto de intereses que influya en el contenido de esta presentación. Todo lo que se expone a continuación se basa estrictamente en la **mejor evidencia científica disponible**, sin sesgos ideológicos. La ciencia, a pesar de los intentos de algunos por politizarla, no debería tener ideología. Es nuestro método más fiable para entender y explicar el mundo. Esta conferencia no solo aspira a informar, sino también a invitar a la reflexión crítica. Si algún punto de lo que se presente resulta incómodo o desafiante, quizá ahí esté el mejor punto de partida para profundizar y **cuestionar nuestras propias ideas**.

Debemos **desafiar a nuestro cerebro**, hacernos preguntas y fomentarlas en clase

¿Qué te sugiere este vídeo?

Quizás no hay mejor demostración de la soberbia humana que esta imagen distante de nuestro minúsculo mundo. Para mí, subraya nuestra responsabilidad de tratarnos más amablemente los unos a los otros y de preservar y apreciar el pálido punto azul, el único hogar que hemos conocido. ***Carl Sagan****.*

Fuente: ESA



NOVEMBER 7, 2024 | 2 MIN READ

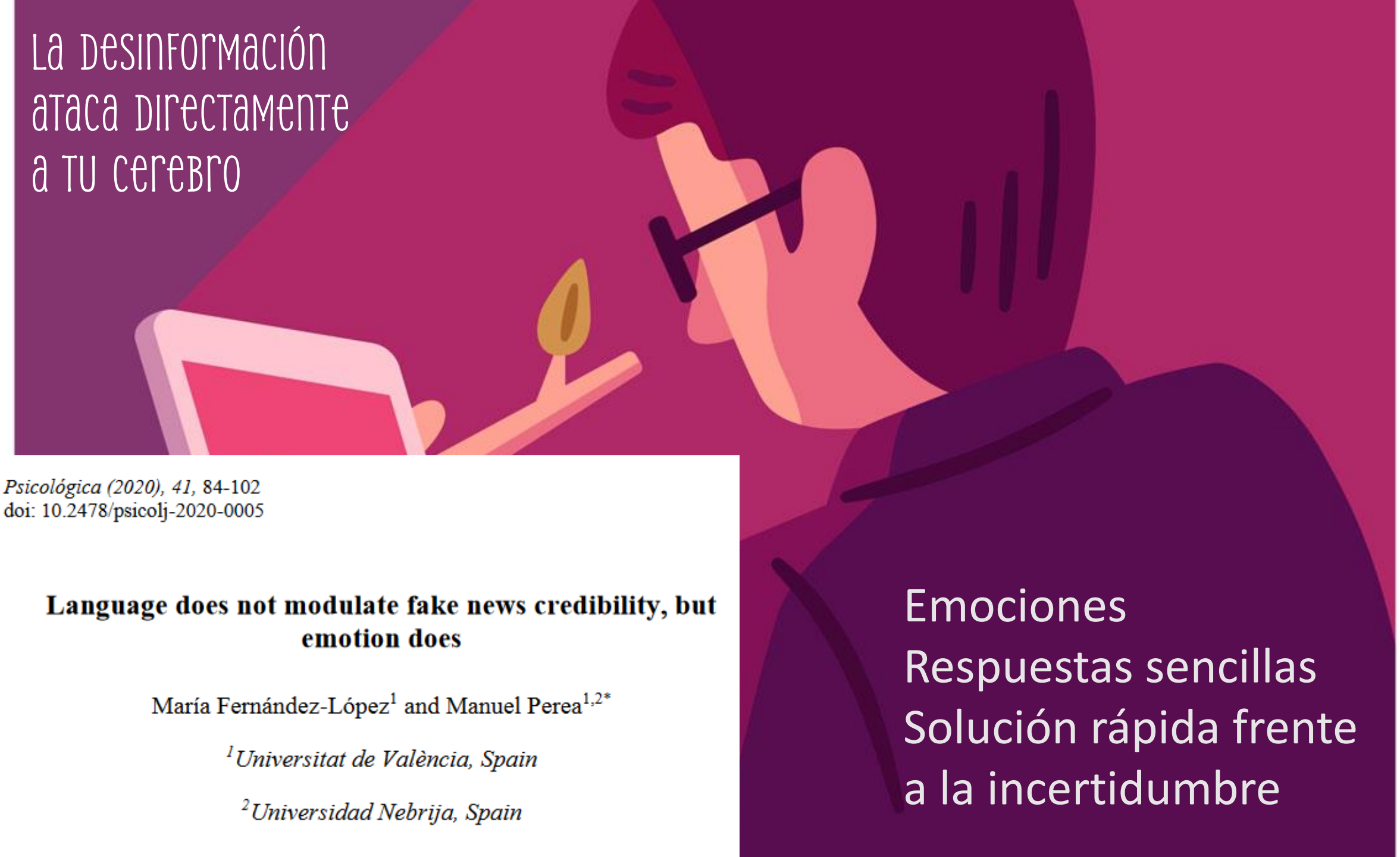
Earth Will Exceed 1.5 Degrees Celsius of Warming This Year

This year won't just be the hottest on record—it could be the first to surpass 1.5 degrees Celsius. The Paris climate accord aims to keep warming below that level when looking over multiple years

BY ANDREA THOMPSON

SCI AM

La desinformación ataca directamente a tu cerebro



Psicológica (2020), 41, 84-102
doi: 10.2478/psicolj-2020-0005

Language does not modulate fake news credibility, but emotion does

María Fernández-López[1] and Manuel Perea[1,2*]

[1] *Universitat de València, Spain*

[2] *Universidad Nebrija, Spain*

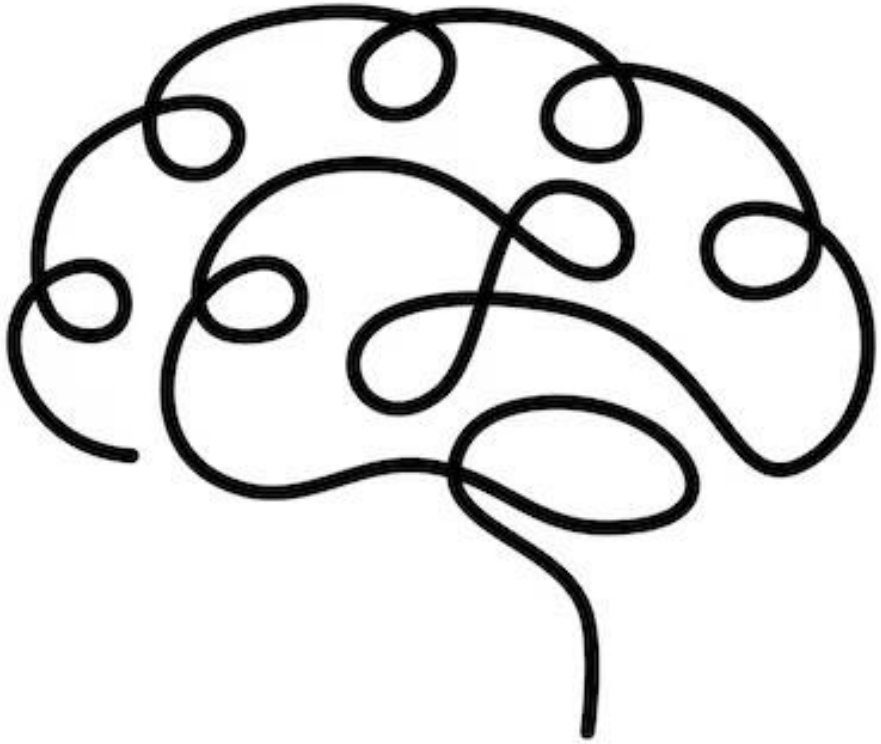
Emociones
Respuestas sencillas
Solución rápida frente a la incertidumbre

Recibimos **información**

Nuestro cerebro hace un **procesamiento rápido** basado en las **emociones**, experiencia previa...* ->sesgo de confirmación, sesgo de grupo…

Compartes esa información

*En determinadas circunstancias lleva a cabo un análisis más complejo (tiempo + glucosa).

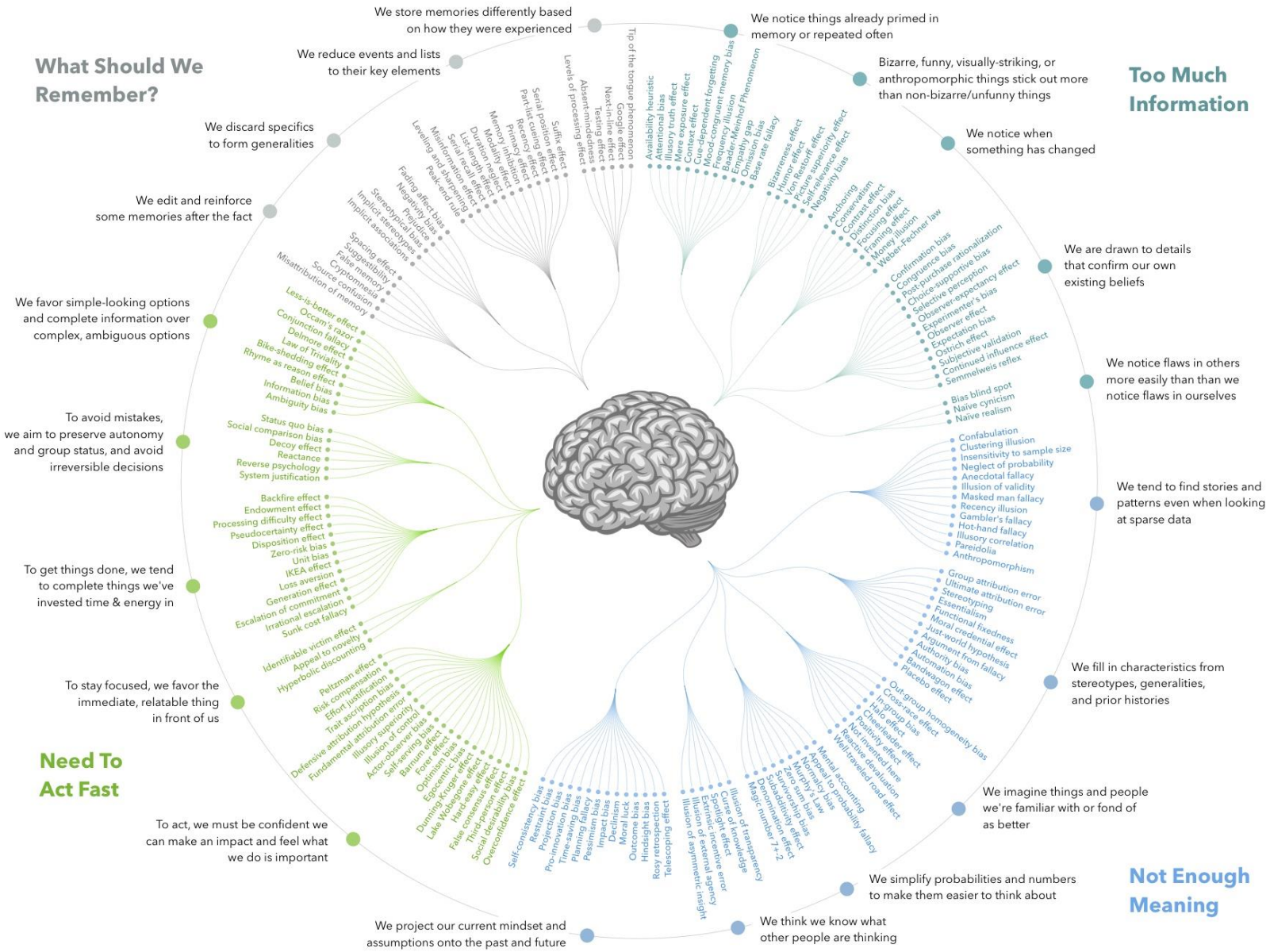


Por muy inverosímil que sea una información, nuestro cerebro puede asumirla como cierta.

Sesgo cognitivo

Fenómeno neurobiológico que ocurre cuando el cerebro realiza **juicios o toma decisiones de manera sistemática** y sin basarse en la lógica o en un análisis racional completo. Este proceso se asocia con las vías y redes neuronales que favorecen respuestas rápidas y eficientes, pero que a menudo pueden ser inexactas o estar influidas por experiencias previas, emociones y contextos evolutivos.

COGNITIVE BIAS CODEX



creative commons attribution · share-alike

En la era de la desinformación, la educación es la mejor vacuna

Banksy, 2009

¿Cómo **aprende** nuestro cerebro?

Facts don't change minds – and there's data to prove it

The Alan Turing Institute

The Turing research that uses social media data to get to grips with the psychology of human belief systems

Aprendemos por exposición, por los estímulos y experiencias que vivimos, por la información que procede de nuestro entorno…todo ello define nuestra forma de interpretar el mundo

¿Por qué nos cuesta desaprender?

Trends in Neurosciences

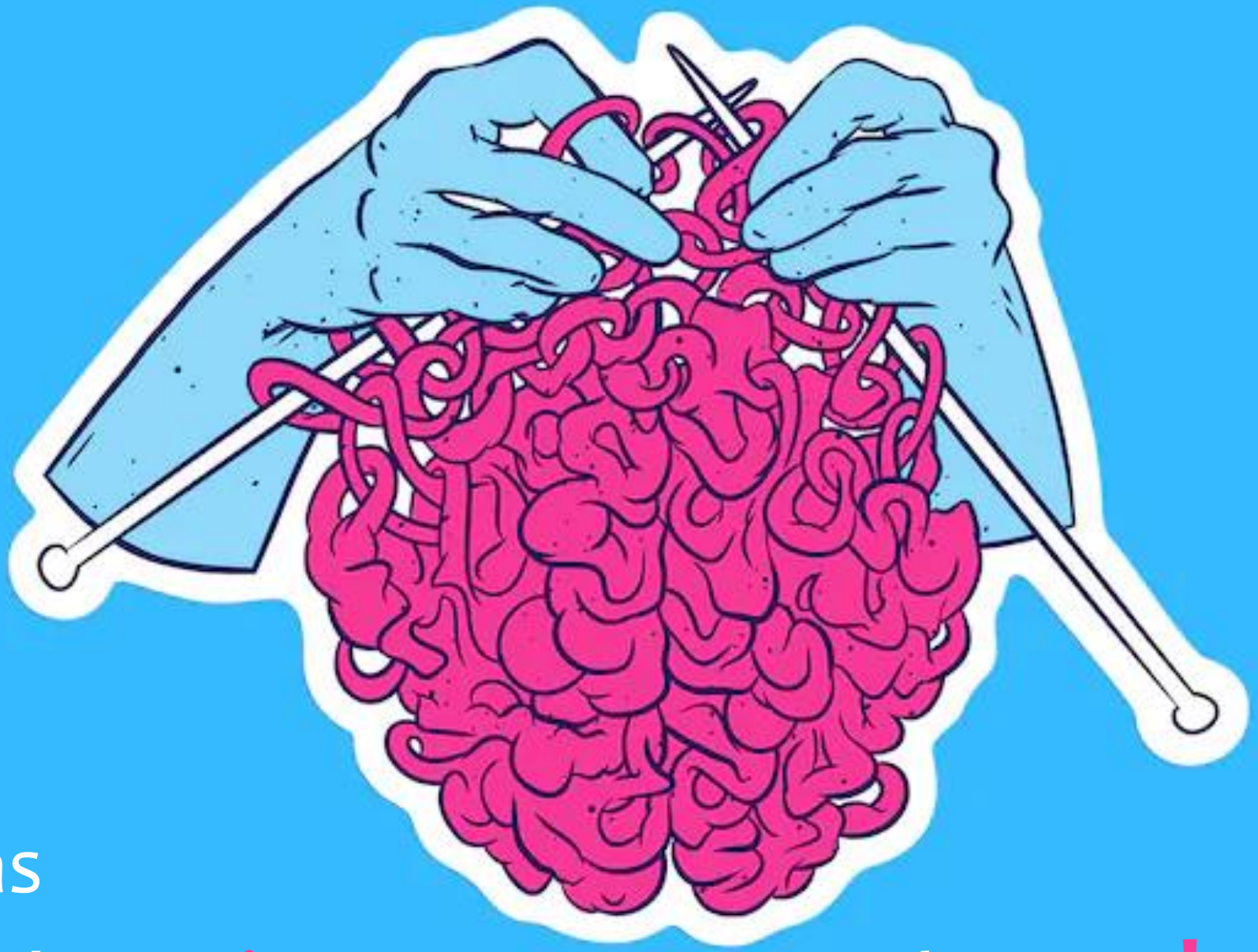
CellPress

Review

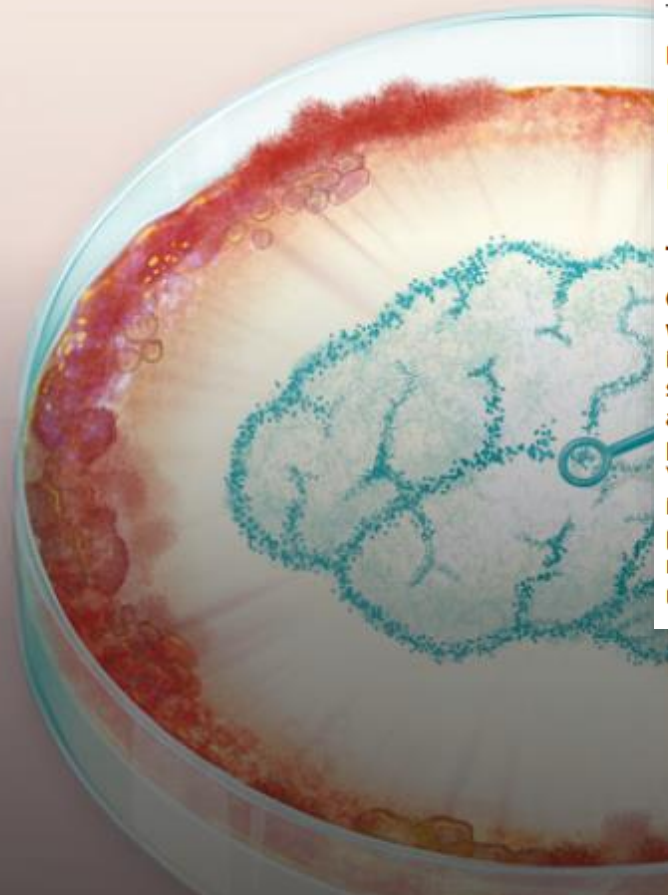
New Learning and Unlearning: Strangers or Accomplices in Threat Memory Attenuation?

Roger L. Clem[1,*] and Daniela Schiller[1,2]

*para docentes y no docentes



Estrategias Neurobiológicas* para interpretar el **mundo actual**



SCIENCE ADVANCES | RESEARCH ARTICLE

PSYCHOLOGICAL SCIENCE

Psychological inoculation improves resilience against misinformation on social media

Jon Roozenbeek[1]*, Sander van der Linden[1], Beth Goldberg[2], Steve Rathje[1], Stephan Lewandowsky[3,4]

Online misinformation continues to have adverse consequences for society. Inoculation theory has been put forward as a way to reduce susceptibility to misinformation by informing people about how they might be misinformed, but its scalability has been elusive both at a theoretical level and a practical level. We developed five short videos that inoculate people against manipulation techniques commonly used in misinformation: emotionally manipulative language, incoherence, false dichotomies, scapegoating, and ad hominem attacks. In seven preregistered studies, i.e., six randomized controlled studies ($n = 6464$) and an ecologically valid field study on YouTube ($n = 22{,}632$), we find that these videos improve manipulation technique recognition, boost confidence in spotting these techniques, increase people's ability to discern trustworthy from untrustworthy content, and improve the quality of their sharing decisions. These effects are robust across the political spectrum and a wide variety of covariates. We show that psychological inoculation campaigns on social media are effective at improving misinformation resilience at scale.

YOU WON'T BELIEVE THIS

Researchers are trying to "inoculate" people against misinformation by giving them small doses ahead of time

31 OCT 2024 · 2:00 PM ET · BY KAI KUPFERSCHMIDT

Aprender a escuchar

Cell Reports

CellPress
OPEN ACCESS

Article

Task-induced modulations of neuronal activity along the auditory pathway

Gioia De Franceschi[1,2,*] and Tania Rinaldi Barkat[1,3,*]
[1]Department of Biomedicine, Basel University, 4056 Basel, Switzerland
[2]Present address: EMBL Rome, Adriano Buzzati-Traverso Campus, Via Ramarini 32, 00015 Monterotondo, Rome, Italy
[3]Lead contact
*Correspondence: gioia.defranceschi@embl.it (G.D.F.), tania.barkat@unibas.ch (T.R.B.)
https://doi.org/10.1016/j.celrep.2021.110115

University of Basel

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News & Events > News > When the brain switches from hearing to listening

Listen

When the brain switches from hearing to listening

PSYCHOLOGY & NEUROSCIENCE

Psychology & Neuroscience, 2009, 2, 2, 111 - 123
DOI: 10.3922/j.psns.2009.2.003

Brain activation for reading and listening comprehension: An fMRI study of modality effects and individual differences in language comprehension

Augusto Buchweitz[1], Robert A. Mason[1], Lêda M. B. Tomitch[2] and Marcel Adam Just[1]

1- Carnegie Mellon University, USA

2- Universidade Federal de Santa Catarina, Brazil

¿Es posible aprender y enseñar a **escuchar**?

Psychological Science
Volume 35, Issue 5, May 2024, Pages 455-470
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https://doi.org/10.1177/09567976241239935

SageJournals

Psychological Science in the Public Eye

Disagreement Gets Mistaken for Bad Listening

Zhiying (Bella) Ren and Rebecca Schaumberg

¿Por qué es importante aprender y enseñar a escuchar?

Las personas que hablan perciben sistemáticamente a los oyentes en desacuerdo como peores oyentes.

Home Reading Environment and Brain Activation in Preschool Children Listening to Stories

John S. Hutton, MD[a], Tzipi Horowitz-Kraus, PhD[a,b,c], Alan L. Mendelsohn, MD[e], Tom DeWitt, MD[a], Scott K. Holland, PhD[b,c,d], the C-MIND Authorship Consortium

Perspectives on Psychological Science
Volume 3, Issue 3, May 2008, Pages 173-192
© 2008 Association for Psychological Science, Article Reuse Guidelines
https://doi.org/10.1111/j.1745-6924.2008.00073.x

Original Article

The Function of Fiction is the Abstraction and Simulation of Social Experience

Raymond A. Mar[1] and Keith Oatley[2]

Psychological Medicine

cambridge.org/psm

Original Article

*These authors contributed equally to this work.

Cite this article: Sun Y-J *et al* (2024). Early-initiated childhood reading for pleasure: associations with better cognitive performance, mental well-being and brain structure in young adolescence. *Psychological Medicine* **54**, 359–373. https://doi.org/10.1017/S0033291723001381

Received: 14 October 2022

Early-initiated childhood reading for pleasure: associations with better cognitive performance, mental well-being and brain structure in young adolescence

Yun-Jun Sun[1,2,3,*], Barbara J. Sahakian[1,2,3,4,5,*], Christelle Langley[1,2,3,4,5], Anyi Yang[1,2,3], Yuchao Jiang[1,2,3], Jujiao Kang[1,2,3], Xingming Zhao[1,2,3,7], Chunhe Li[1,2,3], Wei Cheng[1,2,3,6] and Jianfeng Feng[1,2,3,6,7]

[1]Institute of Science and Technology for Brain-Inspired Intelligence, Fudan University, Shanghai, China; [2]Key Laboratory of Computational Neuroscience and Brain Inspired Intelligence (Fudan University), Ministry of Education, Shanghai, China; [3]MOE Frontiers Center for Brain Science, Fudan University, Shanghai, China; [4]Department of Psychiatry, University of Cambridge, Cambridge, UK; [5]Behavioural and Clinical Neuroscience Institute, University of Cambridge, Cambridge, UK; [6]Department of Computer Science, University of Warwick, Coventry CV4 7AL, UK and [7]Zhangjiang Fudan International Innovation Center, Shanghai, China

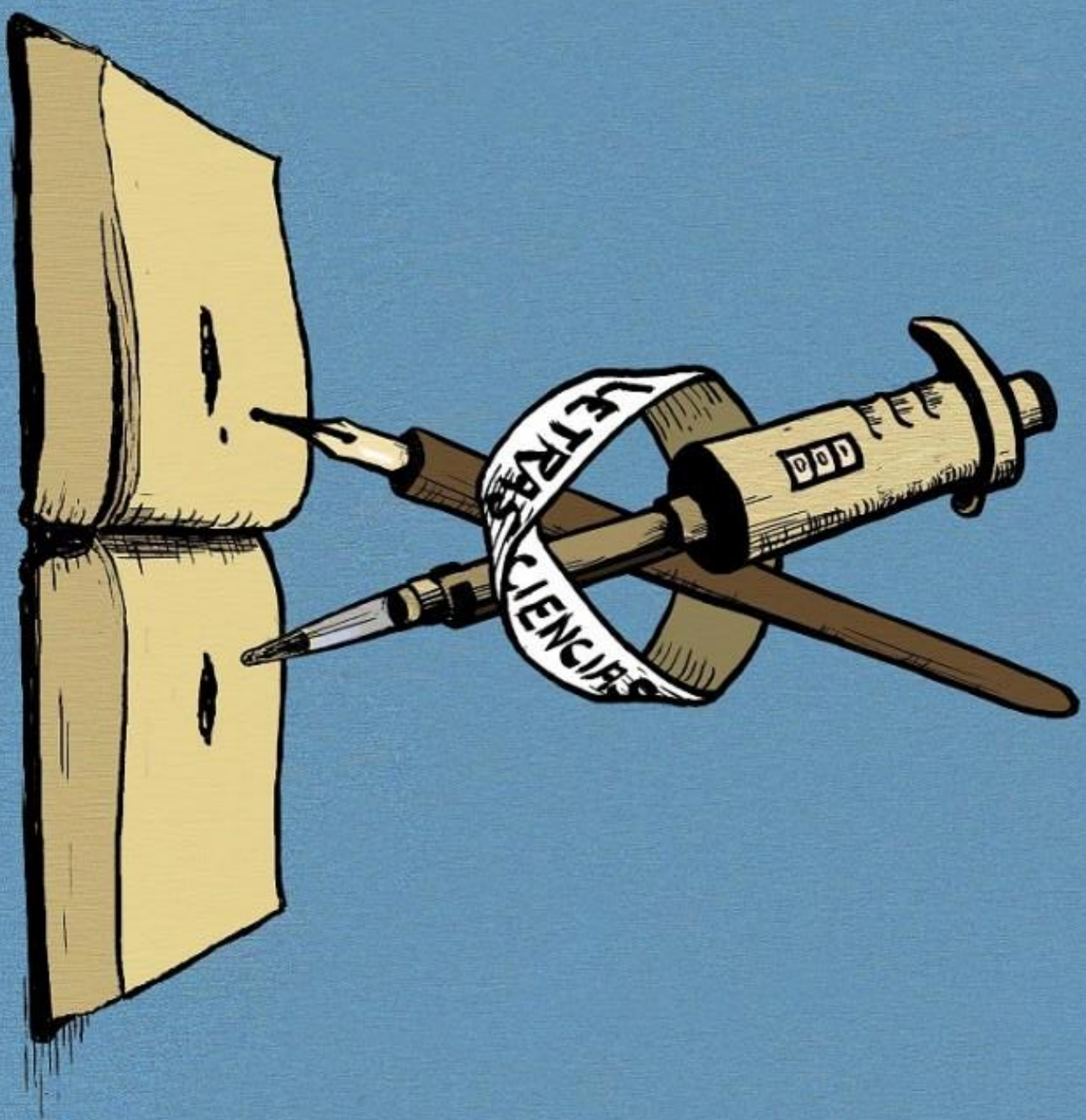
*Además, leer enriquece nuestro **contexto** y por lo tanto nuestra forma de interpretar el mundo*

Carmen de Labra Pinedo
Profesora Titular de Universidad en el Área de Fisiología, Universidade da Coruña

Demasiado TikTok es malo para el cerebro: los beneficios de cambiarlo por un libro

Publicado: 11 noviembre 2024 19:12 CET

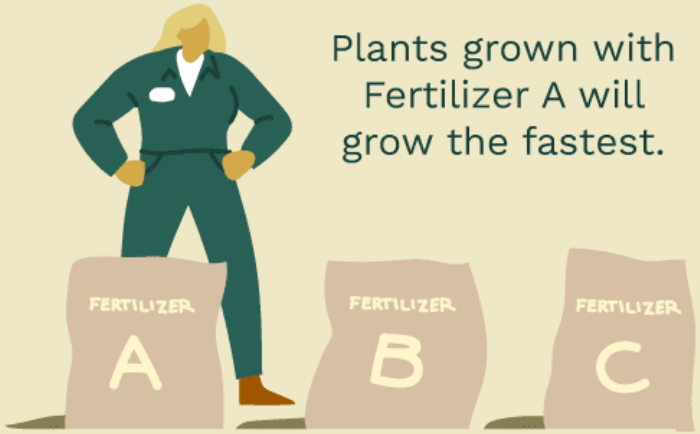
Izaskun Villar



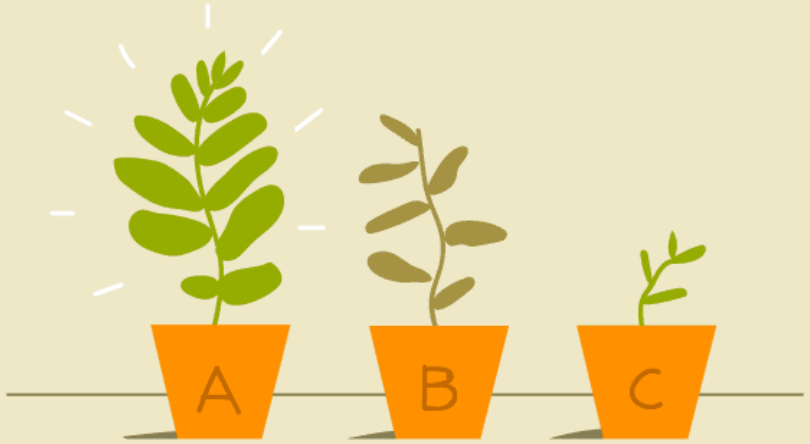
Steps of the Scientific Method

Observation

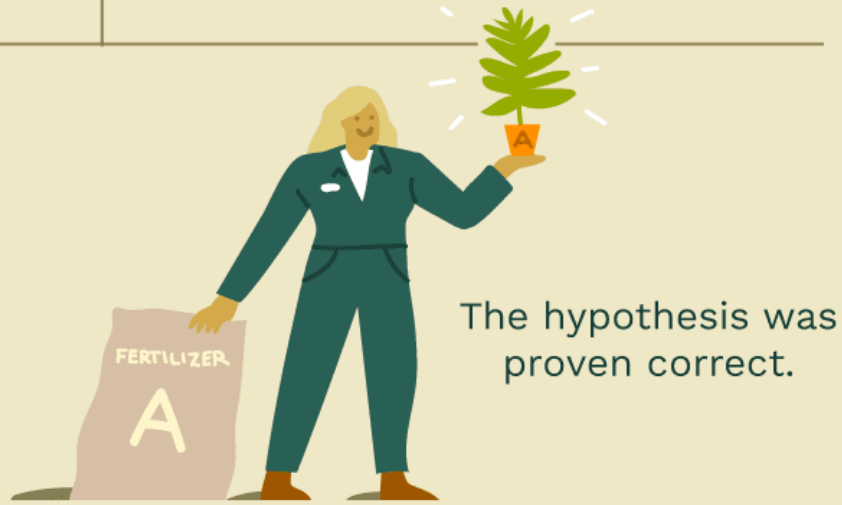
Question



Hypothesis



Results



Conclusion

ThoughtCo.

Contemporary Educational Psychology 59 (2019) 101802

Contents lists available at ScienceDirect

Contemporary Educational Psychology

journal homepage: www.elsevier.com/locate/cedpsych

Scientific sensemaking supports science content learning across disciplines and instructional contexts

Matthew A. Cannady[a,*], Paulette Vincent-Ruz[b], Joo Man Chung[c], Christian D. Schunn[b]

[a] Lawrence Hall of Science, University of California, Berkeley, United States
[b] Learning Research and Development Center, University of Pittsburgh, United States
[c] Georgetown University, United States

ARTICLE INFO

Keywords:
Scientific sensemaking
Science learning
Middle school
Scientific practices

ABSTRACT

Science consists of a body of knowledge and a set of processes by which the knowledge is produced. Although these have traditionally been treated separately in science instruction, there has been a shift to an integration of knowledge and processes, or set of practices, in how science should be taught and assessed. We explore whether a general overall mastery of the processes drives learning in new science content areas and if this overall mastery can be improved through engaged science learning. Through a review of literature, the paper conceptualizes this general process mastery as scientific sensemaking, defines the sub-dimensions, and presents a new measure of the construct centered in scenarios of general interest to young adolescents. Using a dataset involving over 2500 6th and 8th grade students, the paper shows that scientific sensemaking scores can predict content learning gains and that this relationship is consistent across student characteristics, content of instruction, and classroom environment. Further, students who are behaviorally and cognitively engaged during science classroom activities show greater growth in scientific sensemaking, showing a reciprocal relationship between sensemaking ability and effective science instruction. Findings from this work support early instruction on sensemaking activities to better position students to learn new scientific content.

Idea 1. Scientific sensemakig: comprender el mundo desde una perspectiva más científica.

frontiers in Psychology

ORIGINAL RESEARCH
published: 14 May 2020
doi: 10.3389/fpsyg.2020.00904

Individual Differences in Children's Development of Scientific Reasoning Through Inquiry-Based Instruction: Who Needs Additional Guidance?

Erika Schlatter, Inge Molenaar and Ard W. Lazonder*

Behavioural Science Institute, Radboud University, Nijmegen, Netherlands

Idea 2. Diferencias en el aprendizaje del razonamiento científico.

frontiers in Psychology

ORIGINAL RESEARCH
published: 14 May 2020
doi: 10.3389/fpsyg.2020.00904

Individual Differences in Children's Development of Scientific Reasoning Through Inquiry-Based Instruction: Who Needs Additional Guidance?

Erika Schlatter, Inge Molenaar and Ard W. Lazonder*

Behavioural Science Institute, Radboud University, Nijmegen, Netherlands

Scientific reasoning involves a person's ability to think and act in ways that help advance their understanding of the natural world. Young children are naturally inclined to engage in scientific reasoning and display an emerging competence in the component skills of, for example, hypothesizing, experimenting and evaluating evidence. Developmental psychology research has shown that same-age children often differ considerably in their proficiency to perform these skills. Part of this variation comes from individual differences in cognition; another part is due to the fact that the component skills of scientific reasoning emerge at a different age and mature at a different pace. Significantly less attention has been paid to children's capacity to improve in scientific reasoning through instruction and deliberate practice. Although elementary science lessons are generally effective to raise the skill level of a group of learners, not all children benefit equally from the instructional treatment they receive. Knowing what causes this differential effectiveness is important as it can inform the design of adaptive instruction and support. The present study therefore aimed to identify and explain how fifth-graders (N = 138) improve their scientific reasoning skills over the course of a 5-week inquiry-based physics unit. In line with our expectations, significant progress was observed in children's achievements on a written scientific reasoning test, which was administered prior to and after the lessons, as well as in their responses to the questions and assignments that appeared on the worksheets they filled out during each lesson. Children's reading comprehension and mathematical skillfulness explained a portion of the variance in children's pretest-posttest gain. As these overall results did not apply equally to all component skills of scientific reasoning, we recommend science teachers to adapt their lessons based on children's past performance in reading and math *and* their actual performance of each scientific reasoning skill. The orchestration and relative effectiveness of both adaptive science teaching approaches is an interesting topic for future research.

Idea 2. Diferencias en el aprendizaje del razonamiento científico.

Research Article

aps ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Psychological Science
1–13
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DOI: 10.1177/0956797615569355
pss.sagepub.com
SAGE

Physical Experience Enhances Science Learning

Carly Kontra[1,2], Daniel J. Lyons[1,2], Susan M. Fischer[3], and Sian L. Beilock[1,2]

[1]Department of Psychology, University of Chicago; [2]Committee on Education, University of Chicago; and [3]Department of Physics, DePaul University

Abstract

Three laboratory experiments involving students' behavior and brain imaging and one randomized field experiment in a college physics class explored the importance of physical experience in science learning. We reasoned that students' understanding of science concepts such as torque and angular momentum is aided by activation of sensorimotor brain systems that add kinetic detail and meaning to students' thinking. We tested whether physical experience with angular momentum increases involvement of sensorimotor brain systems during students' subsequent reasoning and whether this involvement aids their understanding. The physical experience, a brief exposure to forces associated with angular momentum, significantly improved quiz scores. Moreover, improved performance was explained by activation of sensorimotor brain regions when students later reasoned about angular momentum. This finding specifies a mechanism underlying the value of physical experience in science education and leads the way for classroom practices in which experience with the physical world is an integral part of learning.

Idea 3. La ciencia no es lo que nos enseña el hormiguero… y eso es una gran noticia.

El impacto del pensamiento crítico en el entorno docente

EDUCATION INQUIRY
2019, VOL. 10, NO. 1, 56–75
https://doi.org/10.1080/20004508.2018.1475200

Routledge
Taylor & Francis Group

OPEN ACCESS
Check for updates

Critical thinking in national tests across four subjects in Swedish compulsory school

Thomas Nygren [a], Jesper Haglund [b], Christopher Robin Samuelsson [b], Åsa Af Geijerstam [a] and Johan Prytz [a]

[a]Department of Education, Uppsala University, Uppsala, Sweden; [b]Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

Critical Literacy in the Nordic Education Context: Insights From Finland and Norway

Aslaug Veum, Heidi Layne, Kristiina Kumpulainen, Marianna Vivitsou

Department of Education, Learning, Culture & Interventions (LECI), Helsinki Institute of Sustainability Science (HELSUS)

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Article

JRIE

Journal of Research in International Education
2019, Vol. 18(1) 23–41
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DOI: 10.1177/1475240919830003
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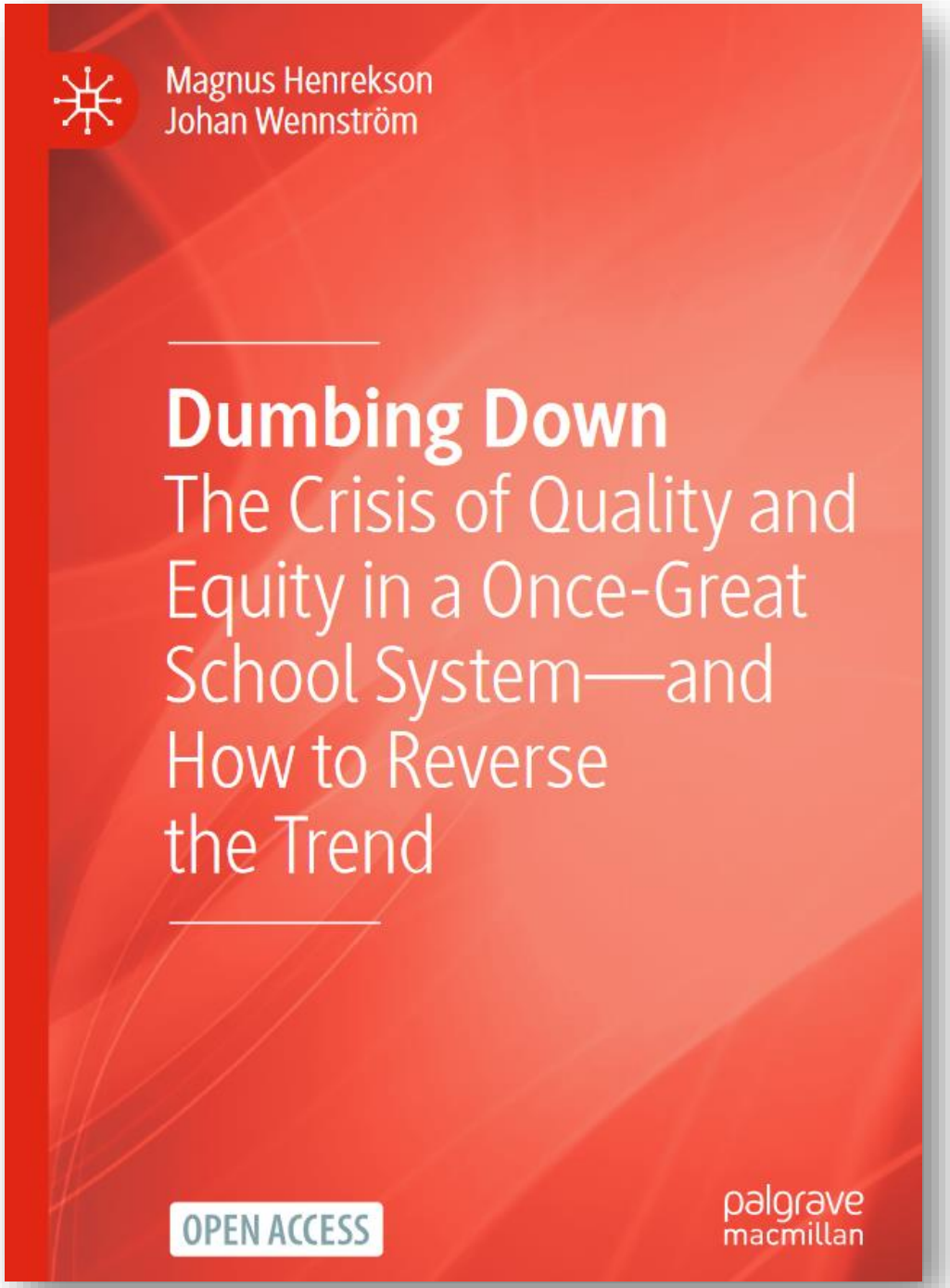
SAGE

Critical thinking efficacy and transfer skills defend against 'fake news' at an international school in Finland



Critical thinking “entails awareness of one’s own thinking and reflection on the thinking of self and others as objects of cognition” (Kuhn & Dean, 2004, p. 270).

Las menores, las víctimas de violencia de género que más aumentaron en 2021

- Según datos del INE, ese año hubo un 28,6% más de víctimas menores de 18 años que en 2020
- En el caso de los denunciados también el mayor aumento se dio entre los menores: un 70,8% más

Sólo un **50,4%** de los chicos entre 14 y 29 años considera la violencia de género un problema social grave y a la pregunta de si creen que la violencia de género no existe y es un “invento ideológico”, uno de cada cinco chicos jóvenes (**el 20% de ellos y el 9,3% de las mujeres**) está de acuerdo con esta afirmación, de acuerdo al tercer barómetro sobre Juventud y Género del Centro Reina Sofía sobre Adolescencia y Juventud de la FAD.

American Journal of Men's Health
Volume 14, Issue 5, September 2020
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https://doi.org/10.1177/1557988320963600

SAGE journals

Review

Male Perpetration of Adolescent Dating Violence: A Scoping Review

Noreen Malhi, MN-NP, RN [1], John L. Oliffe, PhD, RN [1,2], Vicky Bungay, PhD, RN [1], and Mary T. Kelly [1]

British Educational Research Journal
Vol. 48, No. 2, April 2022, pp. 272–291
DOI: 10.1002/berj.3766

Children's epistemic reasoning about social inclusion of aggressive peers in a culturally diverse school

Laura Scholes[a]*, Elizabeth Wallace[a], Sue Walker[b], Jo Lunn Brownlee[b] and Veronica Lawson[c]
[a]*Institute for Learning Science and Teacher Education, Australian Catholic University, Brisbane, Australia;* [b]*Faculty of Education, Queensland University of Technology, Brisbane, Australia;* [c]*Brisbane Catholic Education, Brisbane, Australia*

Engaging Students in Analyzing Bullying Behavior through the Lens of Critical Thinking

B. Joanne Webb
Cheryl A. Kolander
Carol S. O'Neal

Health Tips
Editor: Sarah Benes

Social Science & Medicine 291 (2021) 114483

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Vicious cycle of emotional maltreatment and bullying perpetration/victimization among early adolescents: Depressive symptoms as a mediator

Xiaofei Li [a,b,c,d], E. Scott Huebner [e], Lili Tian [a,b,c,d,*]

[a] School of Psychology, South China Normal University, 510631, Guangzhou, China
[b] Key Laboratory of Brain, Cognition and Education Sciences (South China Normal University), Ministry of Education, China
[c] Center for Studies of Psychological Application, South China Normal University, 510631, Guangzhou, China
[d] Guangdong Key Laboratory of Mental Health and Cognitive Science, South China Normal University, 510631, Guangzhou, China
[e] Department of Psychology, University of South Carolina, Columbia, SC, 29208, USA

Child Psychiatry & Human Development
https://doi.org/10.1007/s10578-021-01192-9

ORIGINAL ARTICLE

Bullying Perpetration and Victimization in Youth: Associations with Irritability and Anxiety

Hung-Wei Bernie Chen[1] · Erin S. Gardner[2] · Tessa Clarkson[3] · Nicholas R. Eaton[4] · Jillian Lee Wiggins[5,6] · Ellen Leibenluft[7] · Johanna M. Jarcho[3]

Accepted: 17 May 2021
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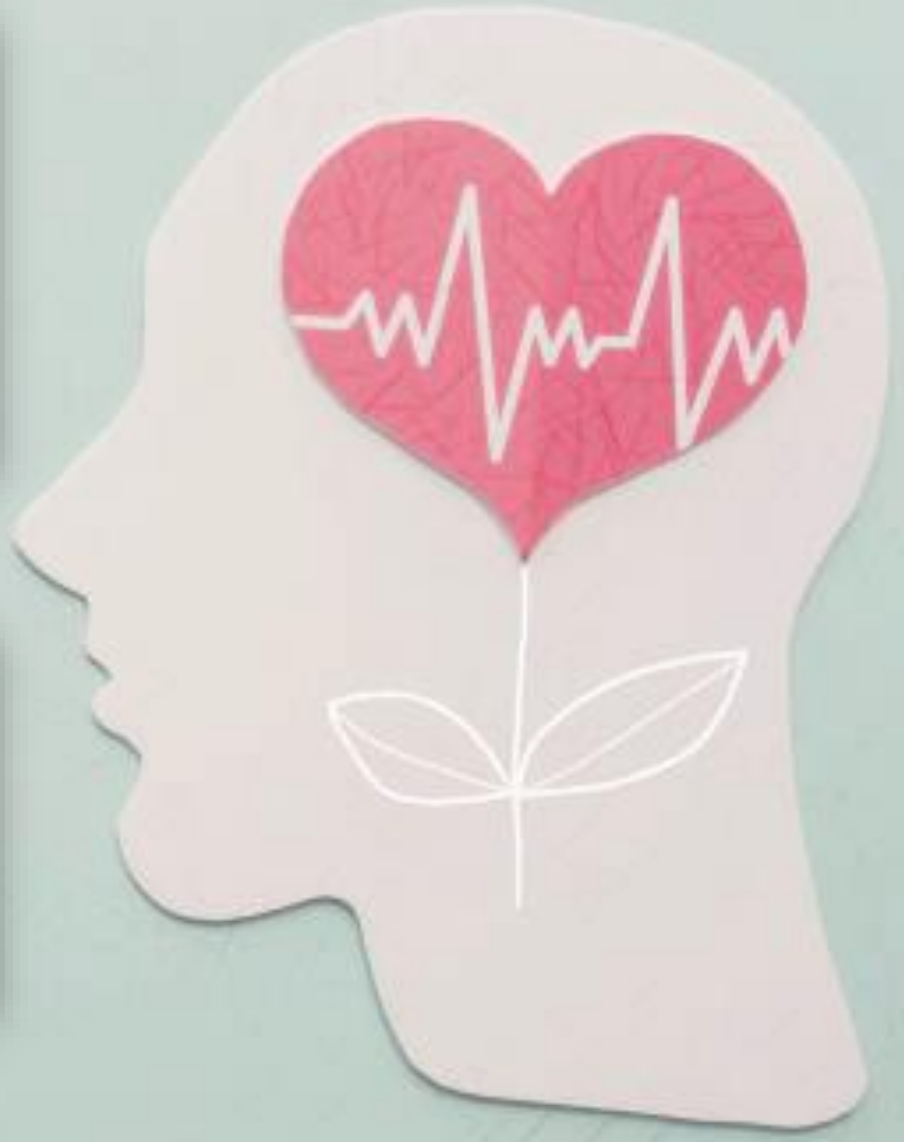


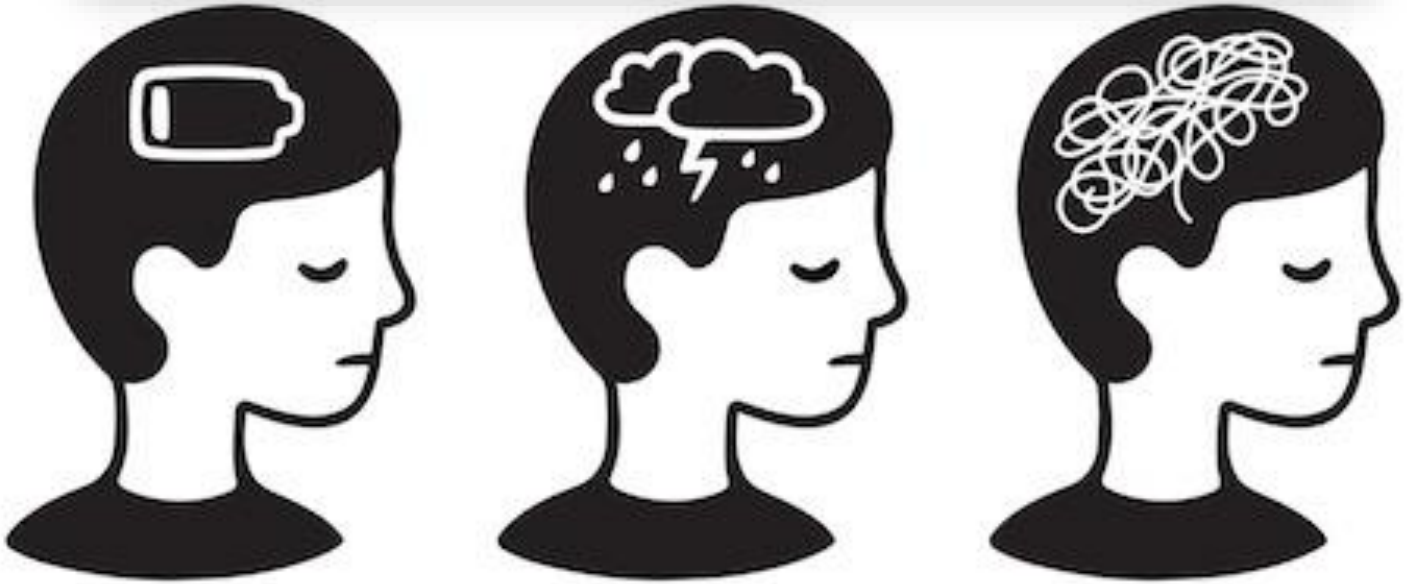
frontiers in Psychology

BRIEF RESEARCH REPORT
published: 19 August 2021
doi: 10.3389/fpsyg.2021.704229

How Do Critical Thinking Ability and Critical Thinking Disposition Relate to the Mental Health of University Students?

*Zhiyuan Liu, Shuangshuang Li, Shouwei Shang and Xuezhu Ren**

School of Education, Huazhong University of Science and Technology, Wuhan, China



Educación como única salida

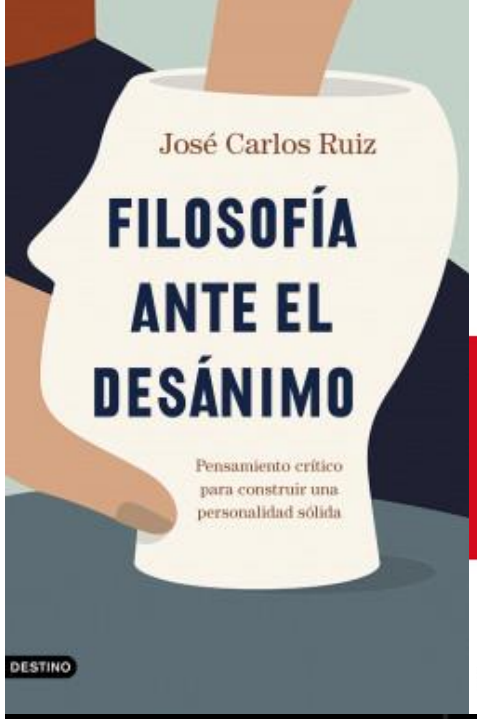
Sesgos cognitivos

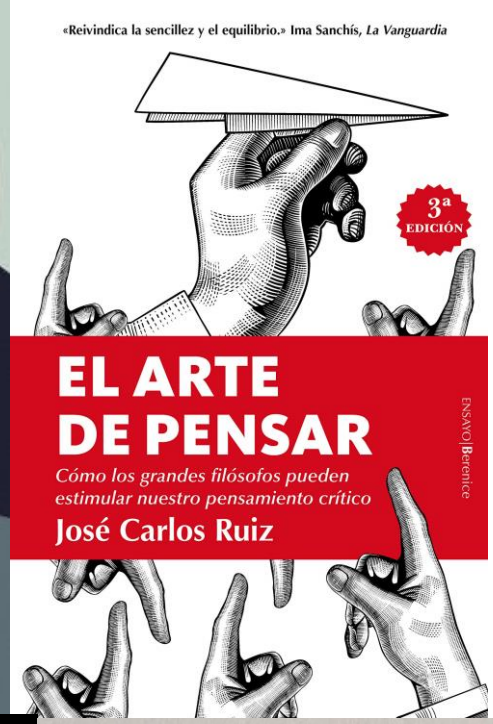
Aprender a escuchar

Método científico

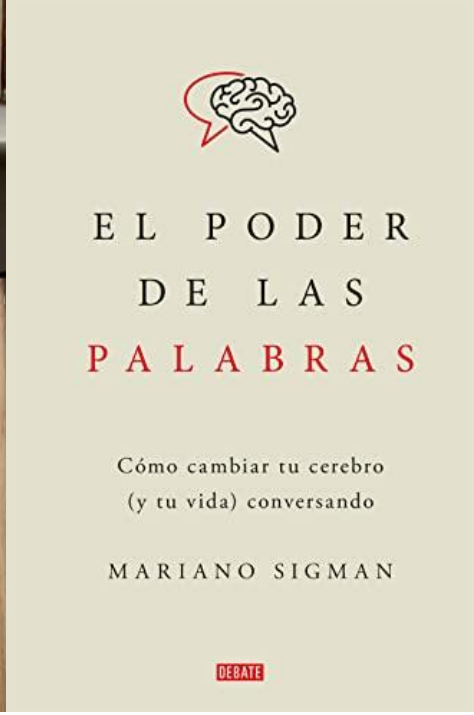
Pensamieto crítico

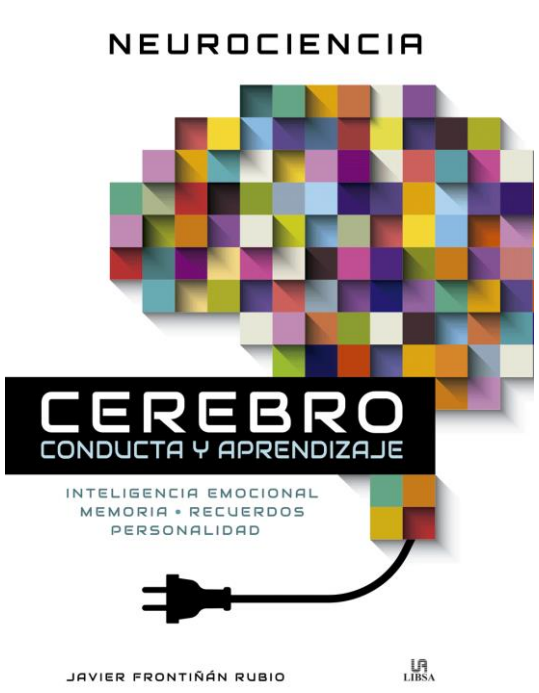
Lectura como vacuna cognitiva


José Carlos Ruiz
FILOSOFÍA ANTE EL DESÁNIMO
Pensamiento crítico para construir una personalidad sólida
DESTINO


«Reivindica la sencillez y el equilibrio.» Ima Sanchís, La Vanguardia
3ª EDICIÓN
EL ARTE DE PENSAR
Cómo los grandes filósofos pueden estimular nuestro pensamiento crítico
José Carlos Ruiz
ENSAYO|Berenice

NEUROCIENCIA & PSICOLOGIA
¿CÓMO APRENDE (Y RECUERDA) EL CEREBRO?
Principios de neurociencia para aplicar en la educación
Mara Dierssen


EL PODER DE LAS PALABRAS
Cómo cambiar tu cerebro (y tu vida) conversando
MARIANO SIGMAN
DEBATE


NEUROCIENCIA
CEREBRO
CONDUCTA Y APRENDIZAJE
INTELIGENCIA EMOCIONAL
MEMORIA • RECUERDOS
PERSONALIDAD
JAVIER FRONTIÑÁN RUBIO
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DRAKONTOS
Carl Sagan
El mundo y sus demonios
La ciencia como una luz en la oscuridad
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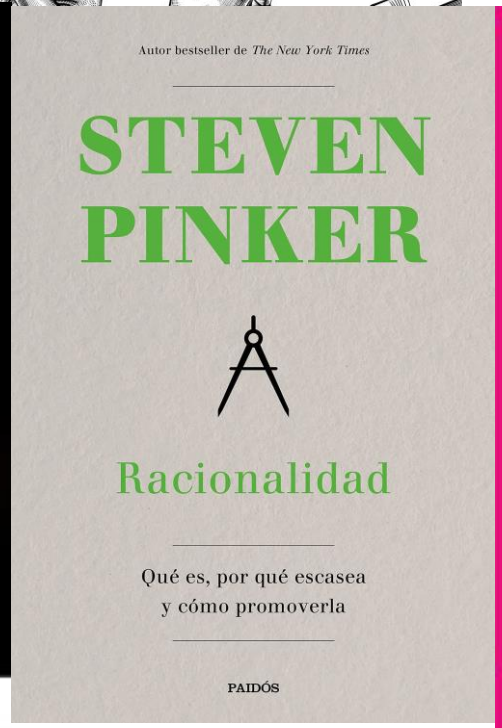
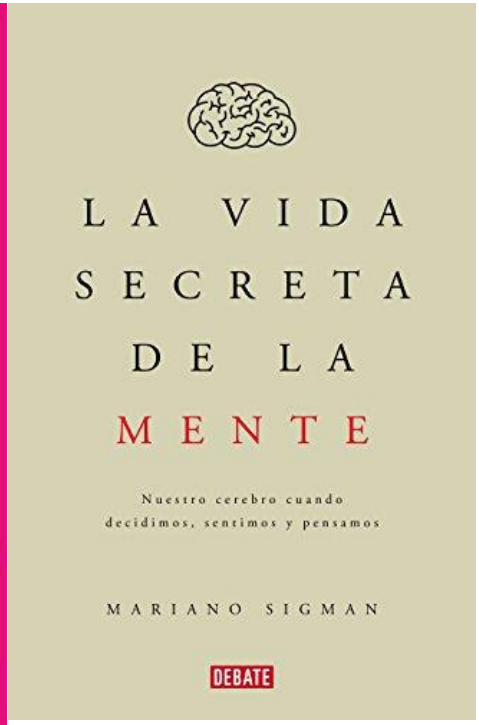

Autor bestseller de The New York Times
STEVEN PINKER
Racionalidad
Qué es, por qué escasea y cómo promoverla
PAIDÓS

NUESTRA MENTE NOS ENGAÑA
Sesgos y errores cognitivos que todos cometemos
HELENA MATUTE
OFF


LA VIDA SECRETA DE LA MENTE
Nuestro cerebro cuando decidimos, sentimos y pensamos
MARIANO SIGMAN
DEBATE

«Deja de hacer lo que estés haciendo y ponte a leer este libro.»
RUTGER BREGMAN
EL VALOR DE LA ATENCIÓN
POR QUÉ NOS LA ROBARON Y CÓMO RECUPERARLA
JOHANN HARI
PENÍNSULA

"Si no podemos pensar por nosotros mismos, si somos incapaces de cuestionar la autoridad, somos pura masilla en manos de los que ejercen el poder. Pero si los ciudadanos reciben una educación y forman sus propias opiniones, los que están en el poder trabajan para nosotros. ***En todos los países se debería enseñar a los niños el método científico y las razones para la existencia de una Declaración de Derechos****. Con ello se adquiere cierta decencia, humildad y espíritu de comunidad"*

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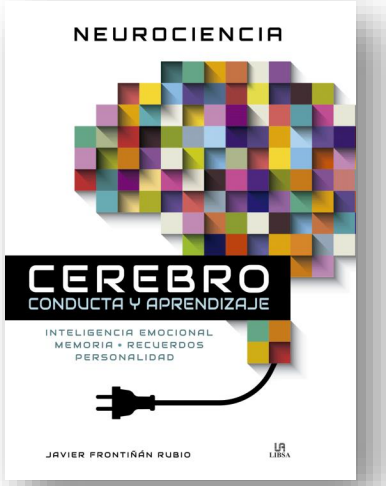
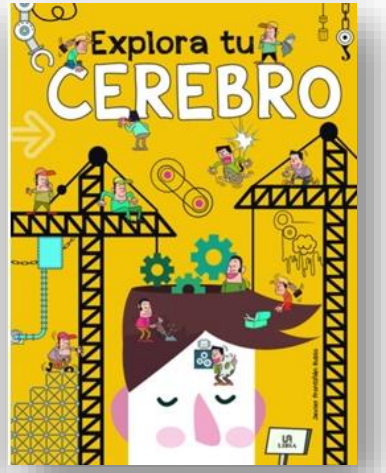
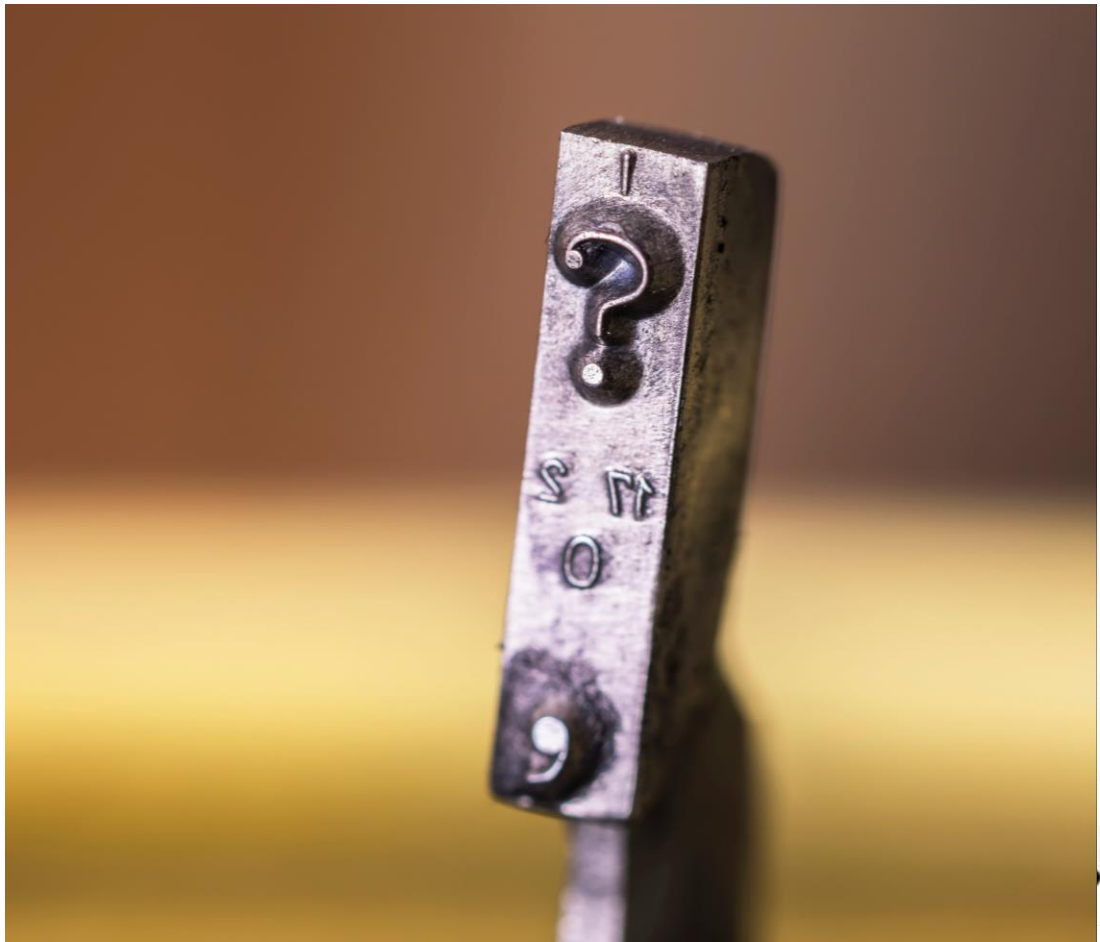




¡Muchas gracias por vuestra **atención**!

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