

Kako otvorena nauka doprinosi boljim naučnim praksama

Serbia.RDM

Ljiljana Lazarevic

Lab for the study of Individual Differences

Institute of Psychology, University of Belgrade

Upravljanje istraživačkim podacima

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Osnovna ideja Otvorene nauke je da bi

svo znanje trebalo da bude slobodno deljeno.

Replikaciona kriza

Reproducibilnost: stupanj konzistentnosti rezultata kada su naučne studije ponovljene.

"Demarcation criterion between science and non science"
(Braude, 1979)

Kako bi trebalo da bude...

Važni naučni nalazi bi trebalo da budu nezavisno replicirani, a dokazi o njihovoj robustnosti akumulirani.

Ukoliko je istraživački nalaz teorijski utemeljen i nastao u okviru metodološki dobro osmišljene studije, trebalo bi da bude publikovan u respektabilnom časopisu.

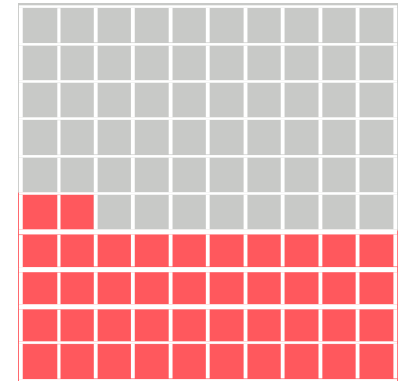
Bez obzira na to da li je nalaz pozitivan ili negativan.

Nauka je auto-korektivna: samo replikabilni nalazi „prođu test“ i njihov epistemološki status postaje zasnovaniji.

Ipak, u psihologiji ...

Empirically analyzing empirical evidence

One of the central goals in any scientific endeavor is to understand causality. Experiments that seek to demonstrate a cause/effect relation most often manipulate the postulated causal factor. Aarts *et al.* describe the replication of 100 experiments reported in papers published in 2008 in three high-ranking psychology journals. Assessing whether the replication and the original experiment yielded the same result according to several criteria, they find that about one-third to one-half of the original findings were also observed in the replication study.



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NATURE | NEWS



Over half of psychology studies fail reproducibility test

Largest replication study to date casts doubt on many published positive results.



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NATURE | COMMENT

Reproducibility: Don't cry wolf

Jan Conrad

01 July 2015

Tighten the requirements for declaring physics breakthroughs, says Jan Conrad.



nature DRUG DISCOVERY
REVIEWS

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Correspondence

Nature Reviews Drug Discovery **10**, 712 (September 2011) | doi:10.1038/nrd3439-c1

Believe it or not: how much can we rely on published data on potential drug targets?

See also: [News and Analysis by Arrowsmith](#)

Florian Prinz¹, Thomas Schlange² & Khusru Asadullah³

- “In 2011, German researchers in the drug company Bayer found in an extensive survey that more than 75% of the published findings could not be validated.”

Medicina – onkološka istraživanja



- “In 2012, scientists at the American drug company Amgen published the results of a study in which they selected 53 key papers deemed to be “landmark” studies and tried to reproduce them. Only 6 (11%) could be confirmed.”

Questionable research practices

-Loše istraživačke prakse-

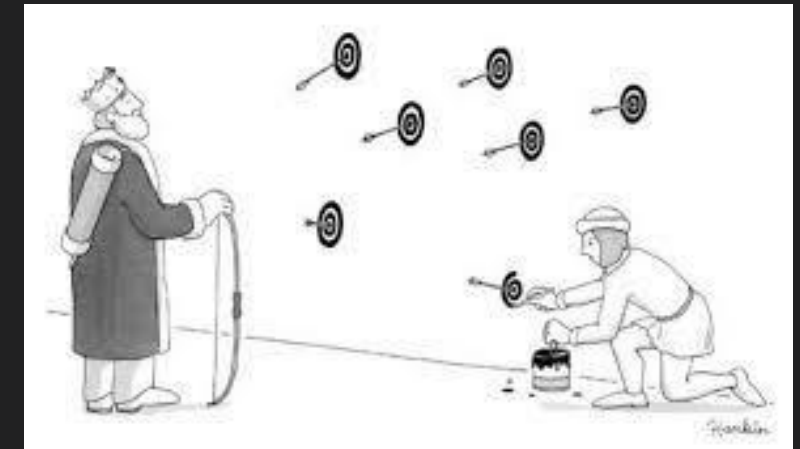


Questionable Research Practices (QRP)

Anonimna anketa - 6000 APA članova:

- 74% ne prijavljuje sve ZV, već samo one za koje su dobijeni statistički značajni efekti
- 71% prestaje sa prikupljanjem podataka kada dobiju statistički značajan rezultat
- 54% prijavljuje neočekivane rezultate kao da su bili očekivani (tzv HARK ing- Hypothesizing After Results are Known)
- 50% prikazuje negativne nalaze kao rezultate pilot studija ili ih navode kao metodološki manje kvalitetne, dok se pozitivni nalazi prikazuju kao potpuno očekivani i metodološki ispravni
- 1.7% priznaje da fabrikuje podatke

Sve QRPs su češće u eksperimentalnim nego u korelacionim studijama.



John, L. K., Loewenstein, G., & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth-telling. *Psychological Science*, 23, 524-532.



Istraživači ipak nisu jedini odgovorni...

Sistem nagrađuje atraktivne pozitivne nalaze a marginalizuje negativne.

Odakle dolaze ovi obrasci?

Priistrasnost u publikovanju

Editori: od 79 editora visoko rangiranih časopisa 94% tvrdi da ne ohrabruju replikacije (Madden, 1995)

Recenzenti: 60% recenzenata favorizuje nove nalaze u odnosu na replikacije – "waist of journal space" (Neuliep & Crandall, 1993)

Autori: verovatnoća da podnesete za objavljivanje pozitivan nalaz je 8 puta veća u odnosu na to da podnesete za objavljivanje negativan nalaz (Greenwald, 1975)

Pogrešni insentivi za naučna istraživanja

Kompetitivnost

Inovacija se favorizuje u odnosu na robustnost nalaza

„Nulti nalazi“ su devalvirani

Kvantitet ispred kvaliteta – “Publish or perish”



"You are completely free to carry out whatever research you want, so long as you come to these conclusions."

Good scientific practices

-Dobre naučné prakse-



Tri zone promene

Metodologija

Izveštavanje i Diseminacija

Incentivi

Metodologija

Transparentnost u istraživanju

Production Transparency (Open design, Open materials)

Analytic Transparency (Open code)

Data sharing (Open data)

Transparentnost u istraživanju

Pre-registracija

Registered Reports

Peer review before results are known to align scientific values and practices



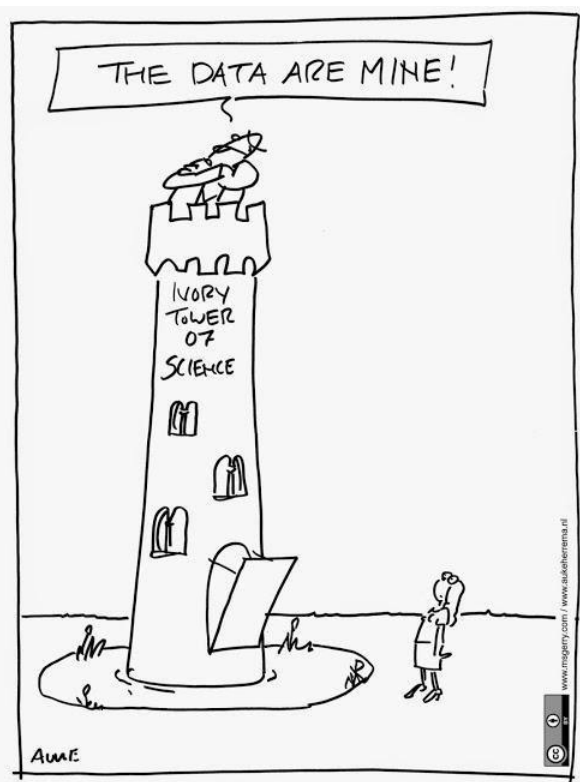
Mora da bude nagrađena!



If you have a project that is entering the planning or data collection phase, we'd like you to try out a preregistration. Through our **\$1 Million Preregistration Challenge**, we're giving away \$1,000 to 1,000 researchers who preregister their projects before they publish them. It's straightforward to complete and will really enhance your research output.

Transparentnost u istraživanju

Open data/Otvoreni podaci



Istraživanja finansirana javnim finansijama, uključujući i sirove podatke, pripadaju javnosti!

Istraživači bi trebalo da :

- Omoguće pristup podacima
- Ili objasne zašto to nije moguće..



THE FUTURE?

Primer otvorenih podataka

Please use this identifier to cite or link to this item: <http://dx.doi.org/10.23668/psycharchives.4281>

Title: Dataset for: Can the disposition toward psychotic-like experiences contribute to understanding different faces of grandiose narcissism beyond the Big Five? Evidence from a representative sample in Germany

Authors: [Lazarević, Ljiljana B.](#)
[Knežević, Goran](#)
[Bosnjak, Michael](#)

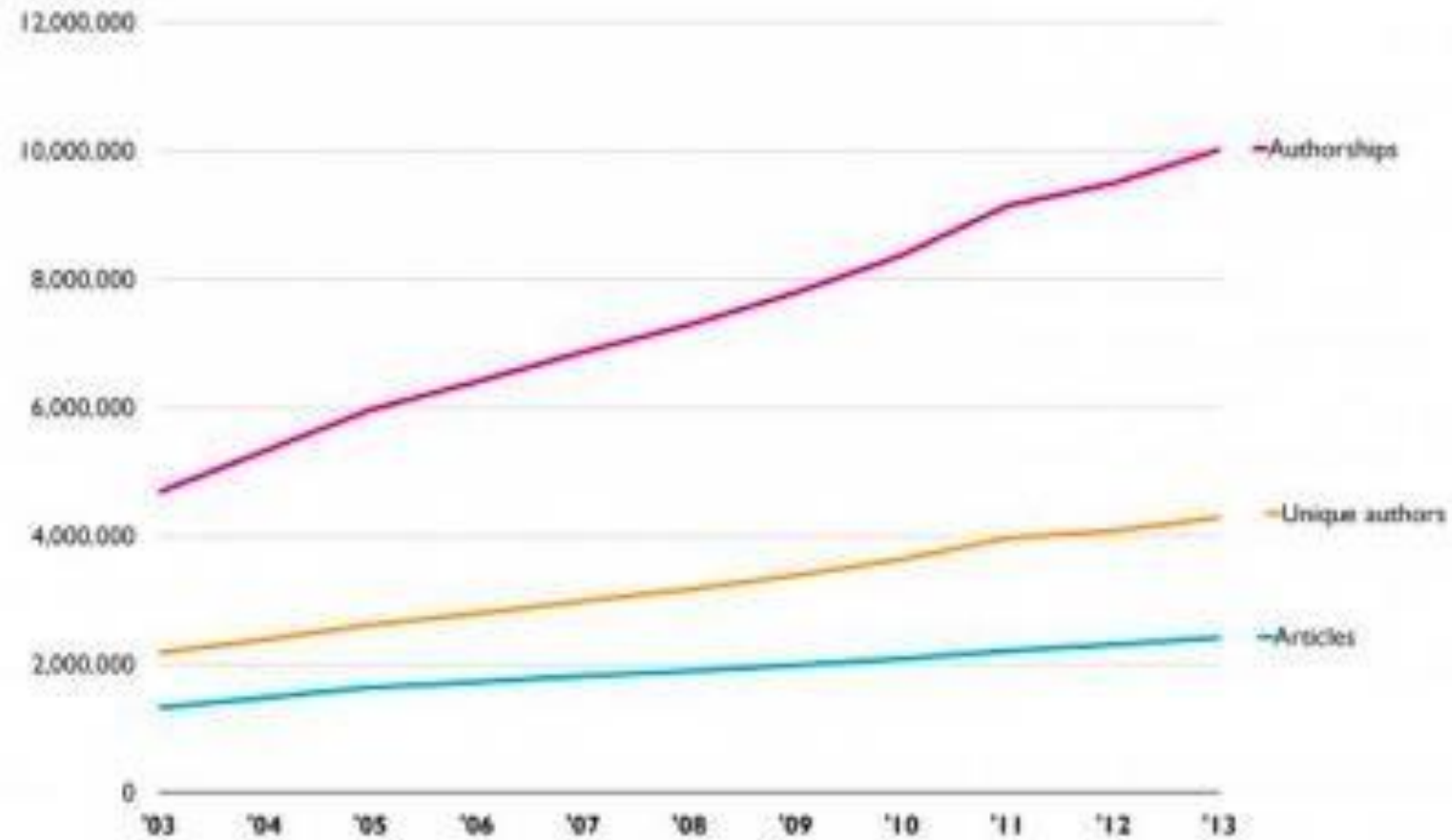
Issue Date: 27-Oct-2020

Publisher: PsychArchives

<https://www.psycharchives.org/handle/20.500.12034/3892>

Kolaborativna istraživanja

Evolucija kolaborativnih istraživanja



Source: Scopus database



Najbolji primeri kolaborativnih istraživanja

CERN

CERN is the result of a collective effort of European countries to build the world's leading particle physics research center to address fundamental scientific questions about the structure of the Universe. CERN hosts the world's largest particle accelerator, a 27-kilometer long Hadron Collider that collides protons or lead ions at energies approaching the speed of light. CERN is one of Europe's first joint ventures, gathering 21 member states and over 600 institutes and universities around the world, which are presently using its facilities.

Around 10,000 visiting scientists from over 113 countries, which represent half of the world's particle physicists, come to CERN for their research. They represent 580 universities and over 85 nationalities. The construction and operation budget contributions are proportional to the GDP of each of the member states.

Najbolji primeri kolaborativnih istraživanja

Reproducibility project: Psychology

RESEARCH ARTICLE

PSYCHOLOGY

Estimating the reproducibility of psychological science

Open Science Collaboration*†

Reproducibility is a defining feature of science, but the extent to which it characterizes current research is unknown. We conducted replications of 100 experimental and correlational studies published in three psychology journals using high-powered designs and original materials when available. Replication effects were half the magnitude of original effects, representing a substantial decline. Ninety-seven percent of original studies had statistically significant results. Thirty-six percent of replications had statistically significant results; 47% of original effect sizes were in the 95% confidence interval of the replication effect size; 39% of effects were subjectively rated to have replicated the original result; and if no bias in original results is assumed, combining original and replication results left 68% with statistically significant effects. Correlational tests suggest that replication success was better predicted by the strength of original evidence than by characteristics of the original and replication teams.

Rigoroznija statistička i metodološka edukacija

- Collaborative Replications and Education Project - a crowdsourced replication project for undergraduate researchers.
- **Svrha:** Kroz učešće studentata u velikim ireplikacionim istraživanjima :
(1) facilitira se i poboljšava edukacija za istraživački rad
(2) učvršćuju se istraživački nalazi u psihologiji.



The screenshot shows the front page of an article on the Frontiers in Psychology website. At the top, the logo for 'frontiers in Psychology' is displayed, along with the journal title 'Educational Psychology'. Below the logo is a navigation bar with links for 'SECTION', 'ABOUT', 'ARTICLES', 'RESEARCH TOPICS', 'FOR AUTHORS', and 'EDITORIAL BOARD'. There are also social media icons and an 'ARTICLE ALERTS' button. The main content area features the article title 'Publishing Research With Undergraduate Students via Replication Work: The Collaborative Replications and Education Project' and the authors' names: Jordan R. Wagge, Mark J. Brandt, Ljiljana B. Lazarevic, Nicole Legate, Cody Christopherson, Brady Wiggins, and Jon E. Grahe. A 'Check for updates' button is visible in the top right corner of the article area.

Uloga visokoškolskih ustanova (higher education institutions - HEIs)

Usvajavnje i primena otvorene nauke i istraživačkih principa otvorene nauke u polisama i praksama.

Polise i smernice na nivou univerziteta bi morale da istaknu značaj otvorene nauke i da daju uputstva u vezi sa metodama koje se primenjuju u otvorenoj nauci i publikovanju u otvorenom pristupu.

HEIs bi morale da razviju servise i infrastrukturu koja će podržavati otvorenu nauku, kao i da omogući istraživačima trening koji će ih osposobiti za upravljanje istraživačkim podacima i adekvatno čuvanje podataka.

Otvoreni pedagoški resursi (posebno udžbenici) su jedan od velikih izazova implementacije otvorenih naučnih praksi. **HEIs bi morale da budu podržane od strane finansijera i akademske zajednice kako bi ovakav poduhvat bio uspešan.**

Izveštavanje i Diseminacija

Uloga naučnih časopisa: TOP guidelines

Citation Standards Describes citation of data	Data Transparency Describes availability and sharing of data
Analytical Methods Transparency Describes analytical code accessibility	Research Materials Transparency Describes research materials accessibility
Design and Analysis Transparency Sets standards for research design disclosures	Preregistration of Studies Specification of study details before data collection
Preregistration of Analysis Plans Specification of analytical details before data collection	Replication Encourages publication of replication studies

ACROSS 3 TIERS

1 DISCLOSURE:
the final research output must disclose if the work satisfies the standard

2 REQUIREMENT:
the final research output must satisfy the standard

3 VERIFICATION:
third party must verify that the standard is being met

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Badges to Acknowledge Open Practices

META-RESEARCH ARTICLE

Badges to Acknowledge Open Practices: A Simple, Low-Cost, Effective Method for Increasing Transparency

Mallory C. Kidwell^{1*}, Ljiljana B. Lazarević², Erica Baranski³, Tom E. Hardwicke⁴, Sarah Piechowski⁵, Lina-Sophia Falkenberg⁵, Curtis Kennett⁶, Agnieszka Slowik⁷, Carina Sonnleitner⁷, Chelsey Hess-Holden⁶, Timothy M. Errington¹, Susann Fiedler⁵, Brian A. Nosek^{1,8}

1 Center for Open Science, Charlottesville, Virginia, United States of America, **2** University of Belgrade, Belgrade, Serbia, **3** University of California, Riverside, Riverside, California, United States of America, **4** University College London, London, United Kingdom, **5** Max Planck Institute for Research on Collective Goods, Bonn, Germany, **6** Mississippi State University, Starkville, Mississippi, United States of America, **7** University of Vienna, Vienna, Austria, **8** University of Virginia, Charlottesville, Virginia, United States of America

* Mallory@cos.io; Mallory.Kidwell@utah.edu



OPEN ACCESS

Citation: Kidwell MC, Lazarević LB, Baranski E, Hardwicke TE, Piechowski S, Falkenberg L-S, et al. (2016) Badges to Acknowledge Open Practices: A Simple, Low-Cost, Effective Method for Increasing Transparency. PLoS Biol 14(5): e1002456.

Abstract

Beginning January 2014, *Psychological Science* gave authors the opportunity to signal open data and materials if they qualified for badges that accompanied published articles. Before badges, less than 3% of *Psychological Science* articles reported open data. After



Polise zapošljavanja

German Psychological Society fully embraces open data, gives detailed recommendations

February 15, 2017

tl;dr: The German Psychological Society developed and adopted new recommendations for data sharing that fully embrace openness, transparency and scientific integrity. Key message is that raw data are an essential part of an empirical publication and must be openly shared. The recommendations also give very practical advice on how to implement these values, such as "When should data providers be asked to be co-authors in a data reuse project?" and "How to deal with participant privacy?".

In the last year, the discussion in our field moved from "Do we have a replication crisis?" towards "Yes, we have a problem, and what can and should we change? How can be implement it?". I think that we need both top-down changes on an institutional level, combined with bottom-up approaches, such as local [Open Science Initiatives](#).

Here, I want to present one big institutional change concerning open

The Department of Psychology at the Faculty of Human Sciences of the University of Cologne (UoC) seeks to appoint a

FULL PROFESSOR OF SOCIAL PSYCHOLOGY (W3-tenured)

The successful candidate is expected to have a record of excellence in social cognition, and/or related areas such as cognitive psychology or motivation science. The candidate is also expected to strongly contribute to the UoC's Center for Social and Economic Behavior and the Social Cognition Center Cologne of the Department of Psychology. Both structures are part of UoC's Key Profile Area II, „Behavioral Economic Engineering and Social Cognition“.

For further information please visit <http://c-seb.uni-koeln.de> and <http://soccoo.uni-koeln.de> or contact Christian Unkelbach (mailto:christian.unkelbach@uni-koeln.de).

The ideal candidate's track record should show an excellent fit with these interrelated structures and a strong interest to bridge the fields of social cognition and behavioral economics.

We strongly encourage *international* applicants. Salaries and working conditions at the UoC - one of the German Universities of Excellence – meet international standards. Candidates are expected to be willing to learn the German language. The Faculties offer Bachelor, Master, and doctoral degrees. Courses are taught either in English or German.

The Department of Psychology aims for transparent and reproducible research (including Open Data, Open Materials, and Preregistrations). Applicants are asked to illustrate how they have pursued these goals in the past and/or how they plan to do so in the future.

Na kraju...

Otvorena nauka transformiše način na koji se istraživanja izvode: istraživači saraduju, znanje se deli tako da **svako može da da svoj doprinos naučnom progresu** kroz efikasniju upotrebu istraživačkih rezultata.

Otvorena nauka predstavlja pokušaj sistematske promene u načinu na koji nauka funkcioniše: otvorena nauka menja modus operandi iz “**publish or perish**” u ideju da **znanje treba da bude deljeno**.

Otvorena nauka nije utopija! Ona daje podsticaje za istraživače i ceo sistem.

"EOSCsecretariat.eu has received funding from the European Union's Horizon Programme call H2020-INFRAEOSC-2018-4, Grant Agreement number 831644"

Hvala na pažnji!

ljiljana.lazarevic@f.bg.ac.rs

Our papers available at the website of the Lab for the study of individual differences <https://lira.f.bg.ac.rs/en/>

[Dropbox folder with all the materials](#)