

 [Replication crisis in psychology by Ajmarsella](#) by Louise S. [2015, Sep 07]

From: Ajmarsella

On nytimes.com this afternoon:

<http://www.nytimes.com/2015/08/28/science/many-social-science-findings-not-as-strong-as-claimed-study-says.html>

 [Many Psychology Findings Not as Strong as Claimed, Study Says](#)

 [More by Ajmarsella](#) by Louise S. [2015, Sep 07]

Psychologists Welcome Analysis Casting Doubt on Their Work -  
NYTimes.com

<http://mobile.nytimes.com/2015/08/29/science/psychologists-welcome-analysis-casting-doubt-on-their-work.html?referrer=>

Ajmarsella

 [Comment by Nick Brown](#) by Louise S. [2015, Sep 07]

This is all very interesting (and doubtless embarrassing, for some whose results didn't reproduce).

But I'm also interested in the studies that "did" reproduce (let's assume for a moment that we can make that split reliably, when in fact it turns out to be hard; see for example here <http://alexanderetz.com/2015/08/30/the-bayesian-reproducibility-project/>). What do they tell us?

By definition, the reproductions will be as-faithful-as-possible copies of the original method, probably with bigger samples to give more statistical power, but otherwise unchanged; as we've seen with other reproduction efforts, when a reproduction fails, the authors of the original article often claim that the reproducers made a mistake in their preparation of the "secret sauce".

In other words, even if these studies were to replicate again and again (and presumably, several of them wouldn't), we haven't learned much about their generalizability. The participants and researchers will mostly have been "WEIRD", and the ecological validity of the experimental setup will not always have been determined. We may have greater confidence than before that students will play a particular prisoner's dilemma game a particular way

in a lab (cf: N Halevy, G Bornstein, L Sagiv (2008). In-Group-Love and Out-Group-Hate as Motives for Individual Participation in Intergroup Conflict: A New Game Paradigm, Psychological Science : replication "Highly Significant,  $z > 4$ "), but what does that tell us about in-/out-group behaviours in the real world?

Nick

 [Comment by Frank Kessel](#) by Louise S. [2015, Sep 08]

From: Frank Kessel

Subject: It's Official -- CONTEXT MATTERS! **\*\*BUT\*\*** . . .

As one of the commenters points out, she has confused replication with generalizability. Yes, context matters, but it doesn't apply to the reproducibility project, the aim of which was to replicate under the same conditions as the original -- the same context -- rather than to see how robust the effects were under differing conditions -- generalization. If you can't replicate, then you've got nothing to generalize (or, more sophisticatedly, to explore the impacts of different contexts on established[sic] phenomena). In short, this naive column, far from establishing the importance of context, has made psychologists look like methodological fools. I am embarrassed by it.

On Sep 2, 2015, at 11:14 AM, Frank Kessel wrote:

Another well-designed, controlled 'experiment' with a context 'variable' plugged into another regression equation?

THE NEW YORK TIMES

The Opinion Pages | OP-ED CONTRIBUTOR

Psychology Is Not in Crisis

By LISA FELDMAN BARRETT SEPT. 1, 2015

Photo

<01Barrett-master675.jpeg>

Credit Jonathon Rosen

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Jon Davis 20 hours ago

Psychology is NOT in crisis. But science (and I will give psychologists the benefits of the doubt and include them in my definition of...

24b4Jeff 20 hours ago

The paragraph "Much of science still assumes that phenomena can be explained with universal laws and therefore context should not matter....

Matt 20 hours ago

I think some may feel psychology is in trouble not merely because someone ran the same results with a different result but because the...

SEE ALL COMMENTS

Boston — IS psychology in the midst of a research crisis?

An initiative called the Reproducibility Project at the University of Virginia recently reran 100 psychology experiments and found that over 60 percent of them failed to replicate — that is, their findings did not hold up the second time around. The results, published last week in *Science*, have generated alarm (and in some cases, confirmed suspicions) that the field of psychology is in poor shape.

But the failure to replicate is not a cause for alarm; in fact, it is a normal part of how science works.

Suppose you have two well-designed, carefully run studies, A and B, that investigate the same phenomenon. They perform what appear to be identical experiments, and yet they reach opposite conclusions. Study A produces the predicted phenomenon, whereas Study B does not. We have a failure to replicate.

Does this mean that the phenomenon in question is necessarily illusory? Absolutely not. If the studies were well designed and executed, it is more likely that the phenomenon from Study A is true only under certain conditions. The scientist's job now is to figure out what those conditions are, in order to form new and better hypotheses to test.

A number of years ago, for example, scientists conducted an experiment on fruit flies that appeared to identify the gene responsible for curly wings. The results looked solid in the tidy confines of the lab, but out in the messy reality of nature, where temperatures and humidity varied widely, the gene turned out not to reliably have this effect. In a simplistic sense, the experiment "failed to replicate." But in a grander sense, as the evolutionary biologist Richard Lewontin has noted, "failures" like this helped teach biologists that a single gene produces different characteristics and behaviors, depending on the context.

Similarly, when physicists discovered that subatomic particles didn't obey Newton's laws of motion, they didn't cry out that Newton's laws had "failed to replicate." Instead, they realized that Newton's laws were valid only in certain contexts, rather than being universal, and thus the science of quantum mechanics was born.

In psychology, we find many phenomena that fail to replicate if we change the context. One of the most famous is called "fear learning," which has been used to explain anxiety disorders like post-traumatic stress. Scientists place a rat into a small box with an electrical grid on the floor. They play a loud tone and then, a moment later, give the rat an electrical shock. The shock causes the rat to freeze and its heart rate and blood pressure to rise. The scientists repeat this process many times, pairing the tone and the shock, with the same results. Eventually, they play the tone without the shock, and the rat responds in the same way, as if expecting the shock.

Originally this "fear learning" was assumed to be a universal law, but then other scientists slightly varied the context and the rats stopped freezing. For example, if you restrain the rat during the tone (which shouldn't matter if the rat is going to freeze anyway), its heart rate goes down instead of up. And if the cage design permits, the rat will run away rather than freeze.

These failures to replicate did not mean that the original experiments were worthless. Indeed, they led scientists to the crucial understanding that a freezing rat was actually responding to the uncertainty of threat, which happened to be engendered by particular combinations of tone, cage and shock. Much of science still assumes that phenomena can be explained with universal laws and therefore context should not matter. But this is not how the world works. Even a simple statement like "the sky is blue" is true only at particular times of day, depending on the mix of molecules in the air as they reflect and scatter light, and on the viewer's experience of color.

Psychologists are usually well attuned to the importance of context. In our experiments, we take great pains to avoid any irregularities or distractions that might affect the results. But when it comes to replication, psychologists and their critics often seem to forget the powerful and subtle effects of context. They ask simply, "Did the experiment work or not?" rather than considering a failure to replicate as a valuable scientific clue.

As with any scientific field, psychology has some published studies that were conducted sloppily, and a few bad eggs who have falsified their data. But contrary to the implication of the Reproducibility Project, there is no replication crisis in psychology. The "crisis" may simply be the result of a misunderstanding of what science is.

Science is not a body of facts that emerge, like an orderly string of light bulbs, to illuminate a linear path to universal truth. Rather, science (to paraphrase Henry Gee, an editor at Nature) is a method to quantify doubt about a hypothesis, and to find the contexts in which a phenomenon is likely. Failure to replicate is not a bug; it is a feature. It is what leads us along the path — the wonderfully twisty path — of scientific discovery.

Lisa Feldman Barrett, a professor of psychology at Northeastern University, is the author of the forthcoming book "How Emotions Are Made: The New Science of the Mind and Brain."

 [Comment by Kuang-Hui Yeh](#) by Louise S. [2015, Sep 08]

In general, it is a simple rule that under the same conditions as the original -- the same context, the result should be replicated when it is a valid knowledge. However the point is "the same context", could it be reproduced the same context after decades years in the recent time? I think the commentator would like to remind us the interest of the scientific studies would not focus on the replication, and "Failure to replicate is not a bug; it is a feature. It is what leads us along the path — the wonderfully twisty path — of NEW scientific discovery". I learned from the comments that context matters, culture matters!

Kuang-Hui Yeh

 [Comment by Frank Kessel](#) by Louise S. [2015, Sep 08]

On (supposedly) "same conditions", try one more comment (and consider the implications):

Do we really believe that those folks replicated all aspects of the context?? That's not something that can be done . . . even if the same PI does the research — new RA? New decade? New computer? New state government? New participants with new life histories?

Frank Kessel

 [Comment by Kiran Kumar](#) by Louise S. [2015, Sep 08]

The very notion of context, as "philosophical contextualists" would put it, involves change and novelty. So, can context and replication go together? At

least from their perspective they are incompatible.  
Either one has to stick to the traditional scientific paradigm or adopt contextualism. Any other position in between, under "varieties of scientific contextualism" also cannot fulfil the criteria of replicability either. Or we may have to redefine replicability itself!

Kiran Kumar

 [Comment by Leeat Granek](#) by Louise S. [2015, Sep 11]

HI All,

I wanted to share two new pieces published today about the issue of diversity in Psychology that may be of interest to people on this list.

The first is a letter to the editor in the New York Times on the "replication crisis" that has gotten so much attention lately.

<http://www.nytimes.com/2015/09/08/opinion/how-reliable-are-psychology-studies.html>

The second is an op-ed in the Huffington Post based on my recently published review co-written by Tal Peleg-Sagy looking at representations of African Americans in the grief and loss literature and its implications for the field.

[http://www.huffingtonpost.com/dr-leeat-granek/psychology-grief-and-african-americans\\_b\\_8076238.html](http://www.huffingtonpost.com/dr-leeat-granek/psychology-grief-and-african-americans_b_8076238.html)

Best wishes,  
Leeat

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 [Comment by Louise Sundararajan](#) by Louise S. [2015, Sep 11]

From Replication to Translation

Replication is essential for experimental science, because deep down

researchers know that such studies are not very different from a magic show. If the magician can specify clearly the conditions of the magic to be replicated, then it becomes science. Otherwise, it is just a magic show. It seems to me that the weight of the debate over replicability hinges on this guilty conscience of the researcher as magician. When science becomes a magical ritual, one would not know what it means even if the study is replicated, as Nick Brown points out rightly.

Replicating a study across cultures, we have the following possibilities:

a. Failure to replicate: That's to be expected, since context has changed. Case closed.

b. Success in replication: This is actually a worse problem. Statistical significance may have masked the lack of ecological validity in the replication study. For instance, the stimuli used in the original study may not be representative of stimuli in a different culture. Furthermore, the results may actually reflect affordances discovered by the local participants for the experimental tasks, rather than the putative cognitive tools they use in real life. Such issues concerning ecological validity are rarely raised when the p value reaches significance.

c. Rituals to enhance replication success, such as standardization of stimuli and experimental regiment: If a study fails to replicate, refine the procedures over and over until things click and the desired results are obtained. The problem with this approach, prevalent in cross-cultural psychology, is that results may have more to do with the stimuli used for the testing, rather than the population sample being tested.

Solution, from the IP point of view, lies in a paradigm shift from replication to translation—in the sense of translational science, rather than the vernacular sense of rendering a text intelligible in another language. According to O'Malley and Soyer (2012), translation in science is not simply a matter of knowledge moving from context A to context B, but of systems of inquiry making transformative shifts between research domains thereby opening up new possibilities for old problems. It is in this vein that I offer translation as an alternative to replication. Inspired by Charles Sanders Peirce who puts a premium on translation/interpretation in the meaning making endeavors of humans, Wallner (1994) claims that translation is the key to (true) knowledge.

The translation paradigm offers the following advantages over replication:

a. Avoiding the universal versus particular dichotomy, translation is measured not by exact reproduction of the original so much as by compatibility across contexts. With the understanding that things can be similar but different, translation is guided by structural and functional

homology, according to which, for instance, bat's echolocation may be considered the counterpart of human vision.

b. In the translation framework, contexts and differences are foundations for, instead of obstacles to, generalization.

c. Translatability as alternative to replicability. Instead of replicability, the generalization question can be handled by a translatability test, for which any local category can be used as a criterion. A scientific category needs to pass the translatability test of as many local categories as possible to qualify as a universal. In contrast to the top down standardization process in the service of generalization, the translatability test is a bottom up process toward consensus building that capitalizes on not significance testing so much as the logic and coherence of argumentation. For details of the use of translatability test, see my paper, attached.

d. The translation approach is feasible for empirical research. One example shall suffice. Instead of replicating emotion regulation on the Chinese population, a study translated the emotion regulation scale into terms of emotion refinement, with very interesting results.

e. There are two competing orientations in science--justification versus discovery. The replication debate stems from the justification orientation that is preoccupied with testing a single privileged hypothesis. To promote the discovery orientation, we need to channel our energy from the testing of focal hypothesis to that of alternative and innovative hypotheses. A translation project will serve the discovery orientation well.

 [Grounding Science in Culture](#)

 [Comment by Ajmarsella](#) by Louise S. [2015, Sep 11]

 <http://www.nytimes.com/2015/09/08/opinion/how-reliable-are-psychology-studies.html? r=0>

How Reliable Are Psychology Studies?

SEPT. 8, 2015

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To the Editor:

Lisa Feldman Barrett wants to reassure us that the inability to replicate findings in more than half of 100 published psychology experiments is no reason for concern about the scientific state of psychology ("Psychology Is Not in Crisis," Op-Ed, Sept. 1). The reasons for the failure to replicate, she

cheerily suggests, is that science is contextual — results are contingent on the context in which each study is done.

Well, context may matter, but Professor Barrett is whistling in a very highly populated graveyard if that is the best she can do to wave off irreproducibility in the psychological sciences.

Those making the effort to reproduce the psychology studies did try to mimic the circumstances in which the original study was done. Did not work. A valid science cannot have findings so frail as to collapse at a tiny change in a contextual variable.

But that is not really what is bothersome about using context to excuse irreproducibility. If things in psychology are as Professor Barrett maintains, then much more modesty ought be in evidence when psychologists publish their findings, communicate them to the press, or popularize them in books and talks for laypeople. Drawing broad conclusions from a few highly controlled studies of the behavior of a small number of college sophomores is not the responsible way to proceed.

Professor Barrett's attempted rescue of her field is enough to make one suggest turning to the humanities for sources of truth about human nature and behavior.

ARTHUR CAPLAN

New York

The writer is the founding director of the Division of Medical Ethics, NYU Langone Medical Center.

To the Editor:

Re "Analysis Casting Doubt on Their Work Is Still Welcomed by Many Psychologists" (news article, Aug. 29):

Early in my career as a research psychologist I asked a young colleague why so many of my experiments failed to support my hypotheses, while my colleague's always seemed to "work out." My colleague looked me in the eye and said that there was no such thing as a study that didn't work out — it was just a matter of how you packaged it.

Kudos to the new breed of psychologists who are trying to maintain the integrity of the science by encouraging their colleagues to file hypotheses

prior to carrying out their studies and by emphasizing the importance of replication of published research.

HOWARD EHRLICHMAN

Huntington, N.Y.

The writer is professor emeritus of psychology at The Graduate Center, City University of New York.

To the Editor:

The doubts cast on numerous studies offer a reality check about the way psychological research is conducted.

First, the majority of studies are conducted with American undergraduate students as participants. To attempt to reproduce a study in another social context, you must use a similar research sample. American undergraduates should not be the universal norm on which to base generalizations.

Second, psychology cannot capture "objective truth" about people that can be reproduced over time because no such thing exists. We are constantly changing, evolving, fluid beings, and no one data point in time can capture the complexity of our morality, emotions, thoughts and behaviors.

This is not about the problem of reproducing results; it's a problem of assuming we can make generalizable, objective, static statements about human behavior without regard to social context, culture, class, ethnicity and other individual variables that constantly change over time.

LEEAT GRANEK

Tel Aviv

The writer is a health psychologist and an assistant professor in the Department of Public Health at Ben-Gurion University of the Negev.

A version of this letter appears in print on September 8, 2015, on page A26 of the New York edition with the headline: How Reliable Are Psychology Studies?.

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President

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[Comment by Kiran Kumar Salagame](#) by Louise S. [2015, Sep 11]

Thanks Louise for this new alternative.

Reading through your mail a question rose spontaneously.

Why are we so obsessed with the repeatability issue? Is it the prediction and control agenda that demands it or the search for truth. If it is latter then even a single case can be enough as it is accepted in the medical field. If it is former then any amount of replication will not be sufficient because some extraneous variables always operate that defeats the purpose.

I have just expressed my thoughts as they occurred. So I am open for correction.

Kiran

Kiran Kumar, Mysuru

[Comment by Frank Kessel](#) by Louise S. [2015, Sep 11]

Why does WEIRD keep popping into mind?!