

Replication

The report about an empirical study must report
ALL Threats to Validity,
anything about the study that prevents generalizing its results to the real world.

Threats to

- Internal Validity, e.g.,
 - statistical significance
 - statistical strength
 - experiment tests what it claims to test

- External Validity, e.g.,
 - real-world realism
 - representative contexts

Recall that it's impossible to achieve both validities for studies of full-lifecycle whole methods, e.g., waterfall and agile methods.

Replication = redoing a past study to address a threat to validity, even in exactly the same way to increase statistical significance and statistical strength, but often with some variations to contexts to increase representativeness.

In publication, SE has to learn to accept papers about replications even though they appear to lack NOVELTY!

When you do a study, prepare for publication along with the report, a replication package, containing ALL artifacts you used, including participant consent forms. Use a permanent archival site, e.g., <<https://zenodo.org>> or <<https://arxiv.org>>. A replicator uses the contents of this package to conduct her own study with whatever variations E wants, and prepares for publication a revised replication package.

Studies	Package Contents
—————	—————
Experiments in Lab	Everything
Case Studies in Industry \	/Often cannot include companies' proprietary
Mining Industrial Artifacts/	\data, and must anonymize even companies'
	names