Centering DEI by reimagining software processes and practices

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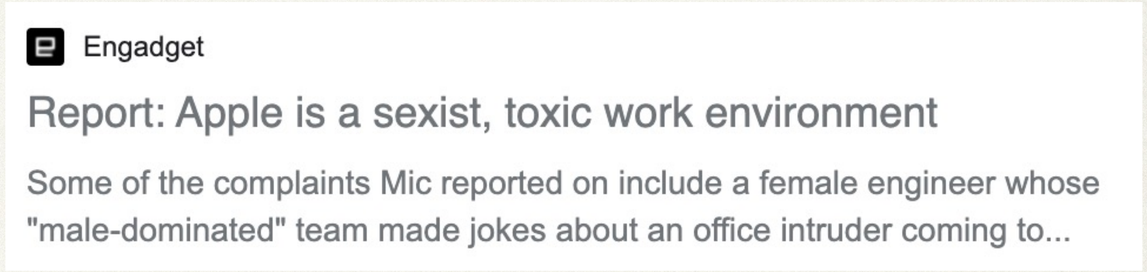
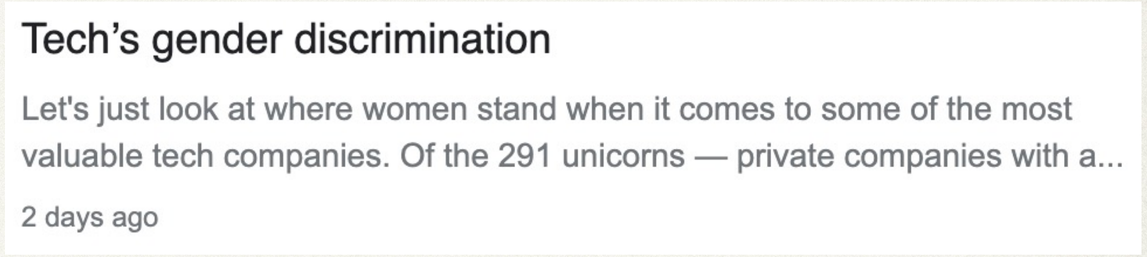
Socio-Technical Activity

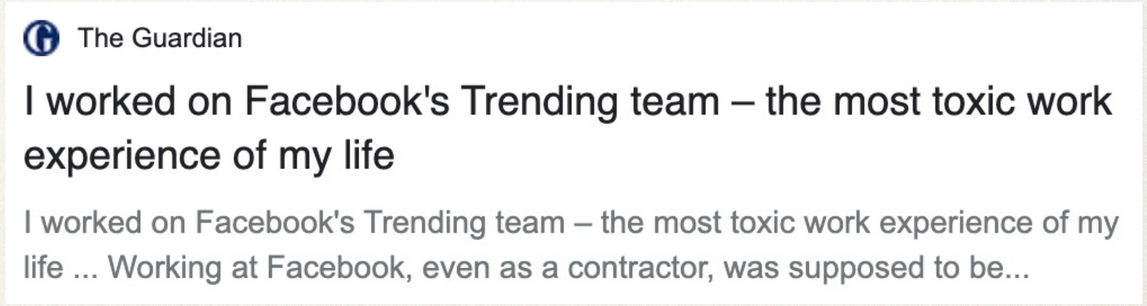
Image source: https://blog.rsisecurity.com/how-are-organizations-at-risk-from-social-engineering/

A social perspective

- Negative sentiment and emotion
  [Tourani et al, 2014; Gachechiladze at al., 2017]
- Discrimination
  [Nafus, 2012; Terrell et al., 2017; Imtiaz et al., 2019; Blincoe et al., 2019]
- Profanity, insults, and toxic discussions
  [Squire and Gazda, HICSS 2015; Raman et al., ICSE 2020]]

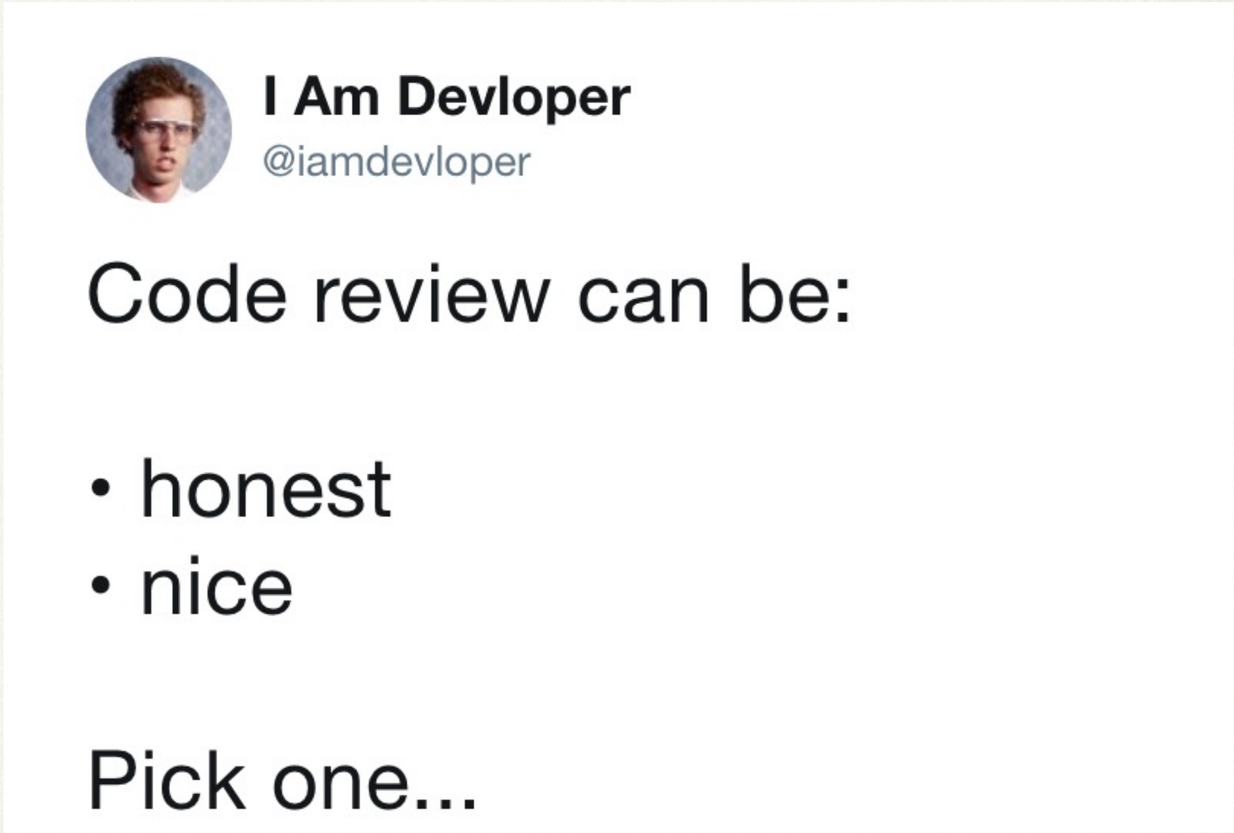






Software Code Review

- Feedback from peers
- Many known benefits
- Reports it creates toxic environment
- “Pushback”
  [Engelman et al., 2020]

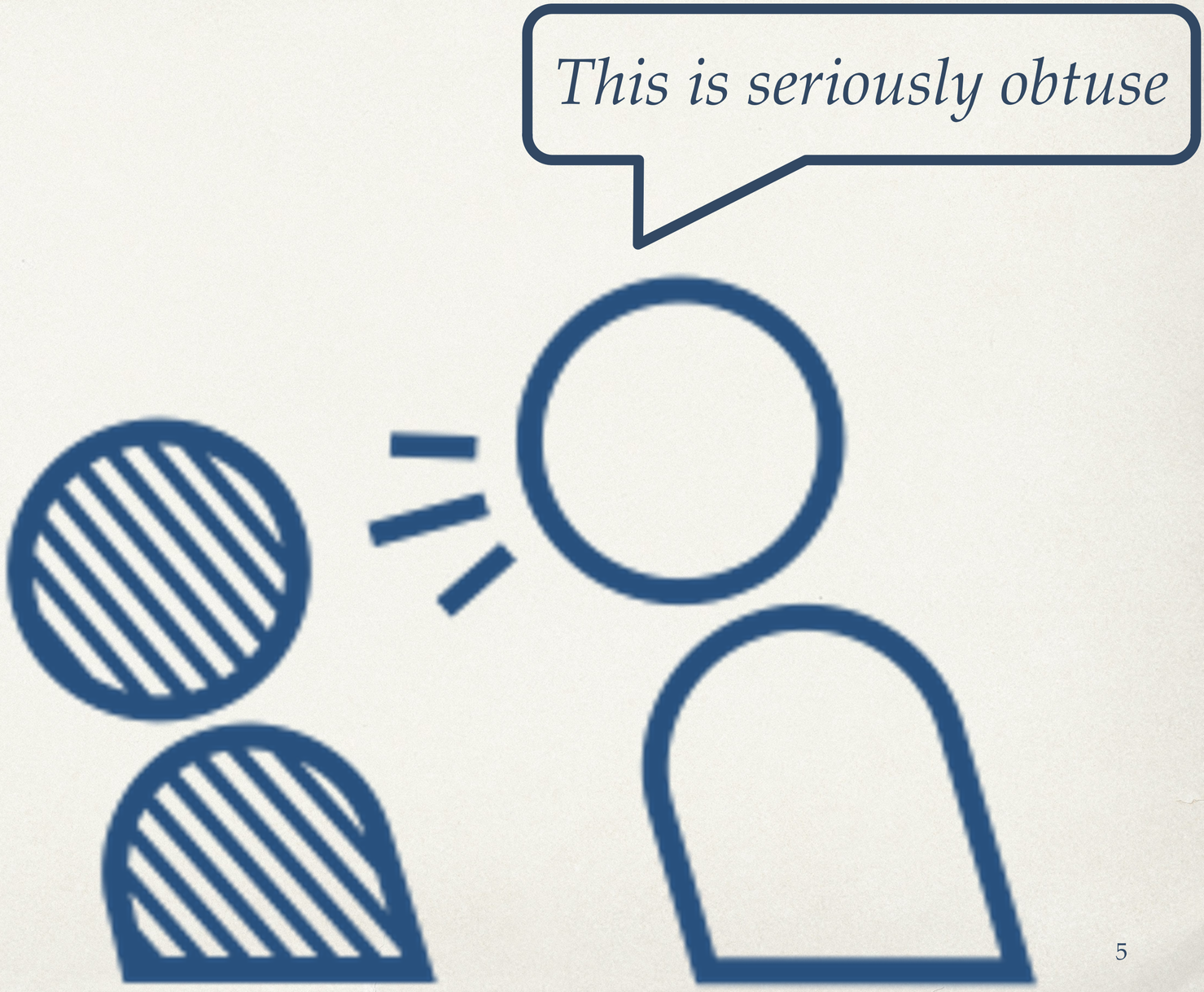


Carolyn D Egelman, Emerson Murphy-Hill, Elizabeth Kammer, Margaret Morrow Hodges, Collin Green, Ciera Jaspan, and James Lin. 2020. Predicting developers’ negative feelings about code review. In 2020 IEEE/ACM 42nd International Conference on Software Engineering (ICSE). 174–185.

Image source: https://twitter.com/iamdevloper/status/864410644732313600

Studied perceptions of feedback in code review

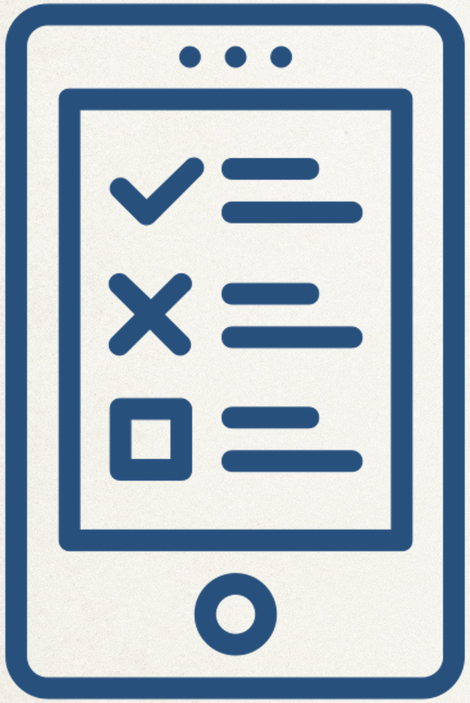
- Destructive criticism lens
- Negative feedback that is both *nonspecific* and *inconsiderate*
- Shown to have negative impacts in other domains



Robert A Baron. 1988. Negative effects of destructive criticism: Impact on conflict, self-efficacy, and task performance. Journal of Applied Psychology 73, 2 (May 1988).

Image source: Lorie Shaull on NounProject.com

Method – Online Questionnaire



What the heck is this? We don't need a null check here…

You don't need to protect instanceOf against null pointers

- Vignette style questions
- Frequency of destructive criticism
- General opinions on destructive criticism
- Demographic questions

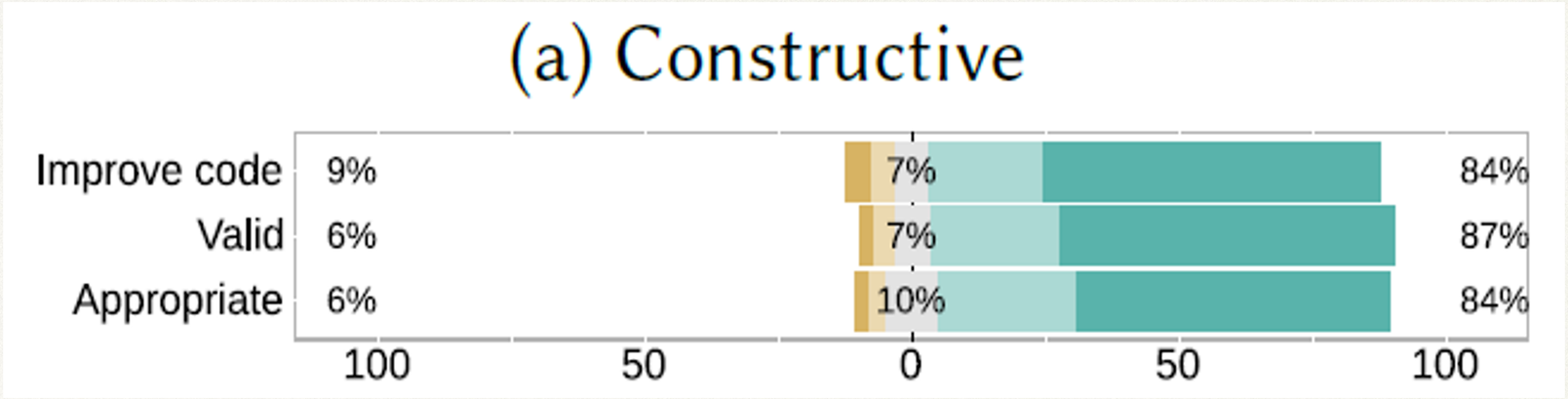
Sanuri Dananja Gunawardena, Peter Devine, Isabelle Beaumont, Lola Garden, Emerson Murphy-Hill, and Kelly Blincoe. 2022. Destructive Criticism in Software Code Review Impacts Inclusion. CSCW 2022.

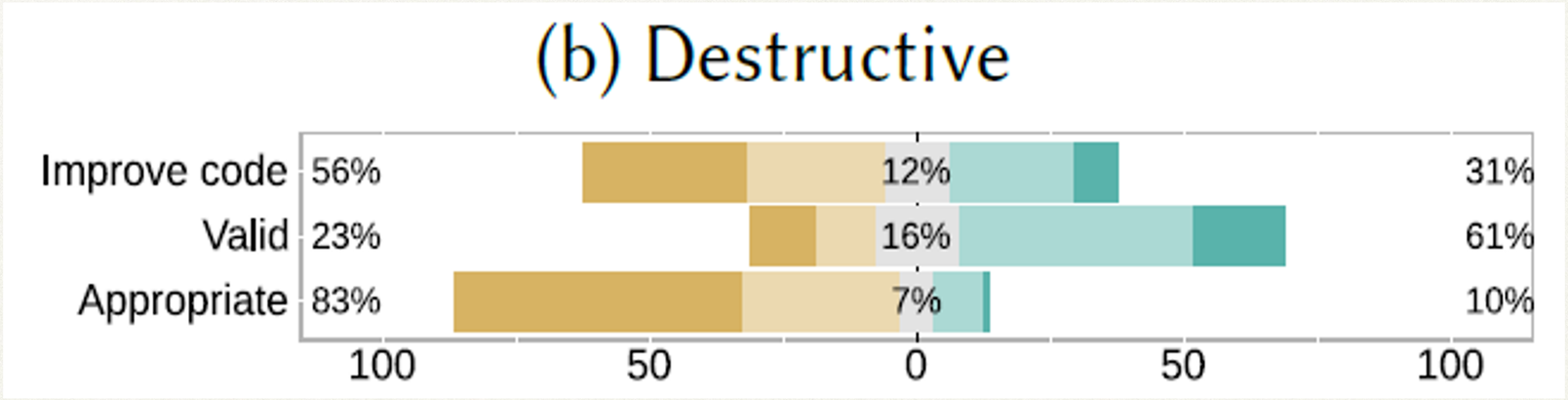
Image source: ProSymbols on NounProject.com

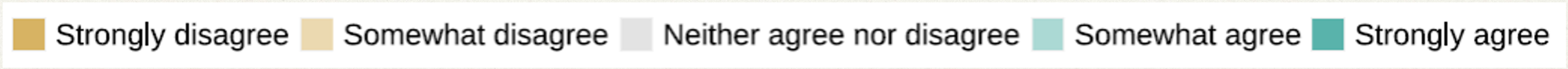
Participants

- Convenience sampling, 93 complete responses
- 43 men, 43 women, 3 non-binary, 4 did not disclose gender
- Average 7.8 years development experience

Perceptions of criticism

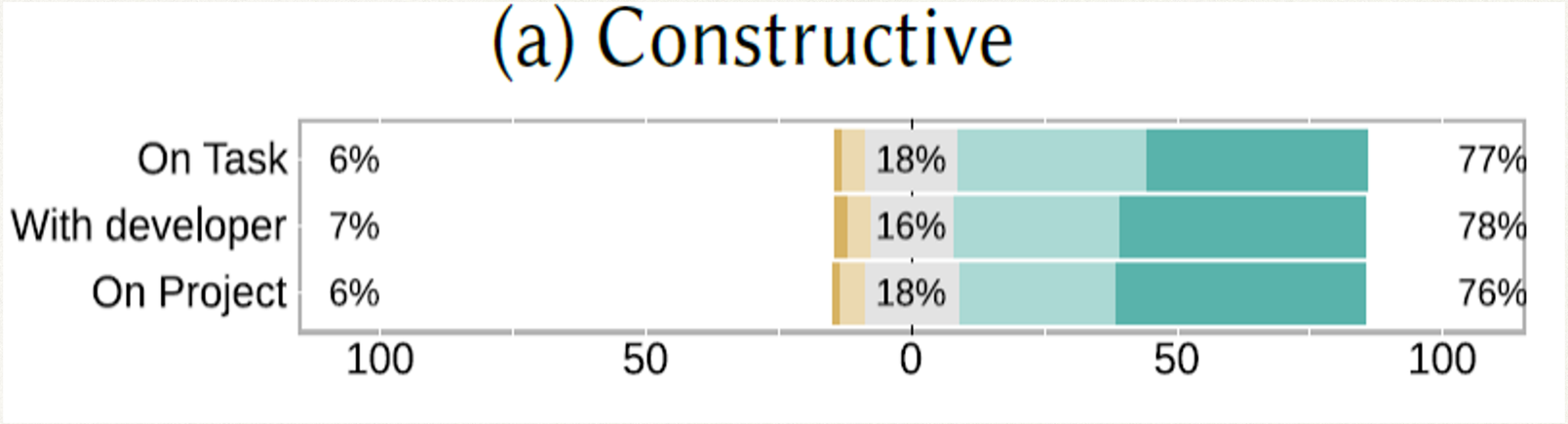


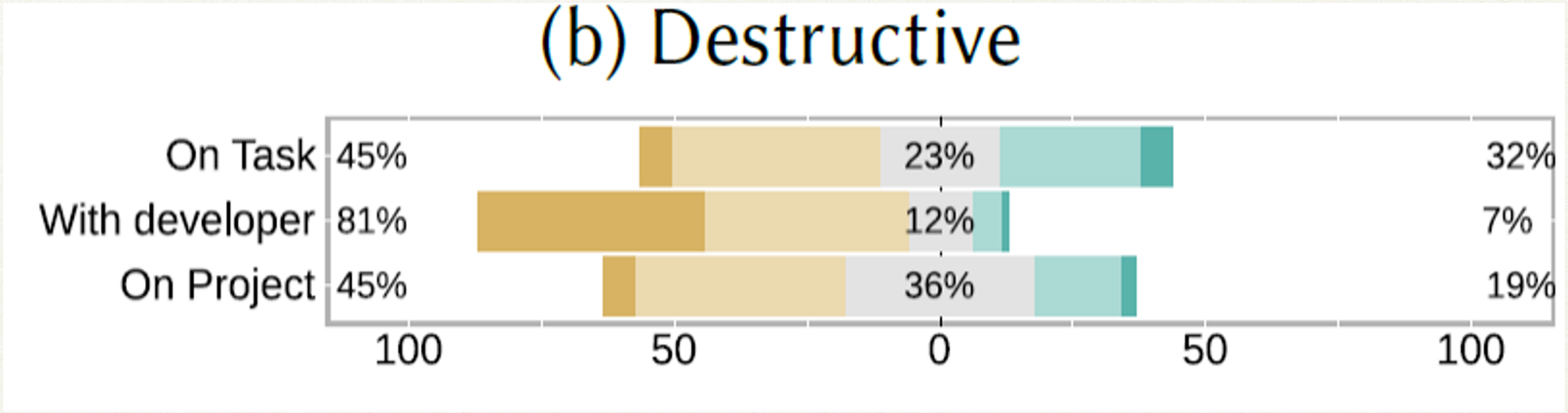


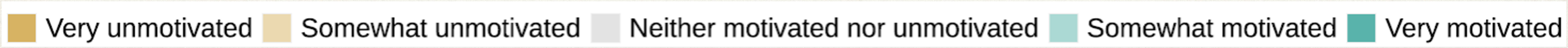


Sanuri Dananja Gunawardena, Peter Devine, Isabelle Beaumont, Lola Garden, Emerson Murphy-Hill, and Kelly Blincoe. 2022. Destructive Criticism in Software Code Review Impacts Inclusion. CSCW 2022.

Motivation to continue working







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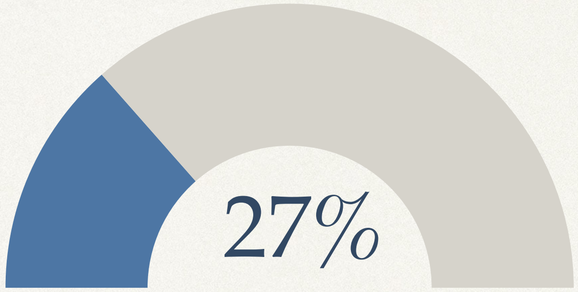
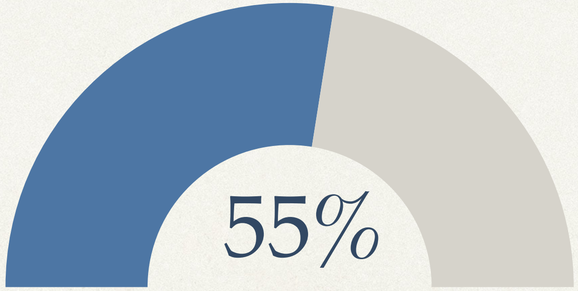
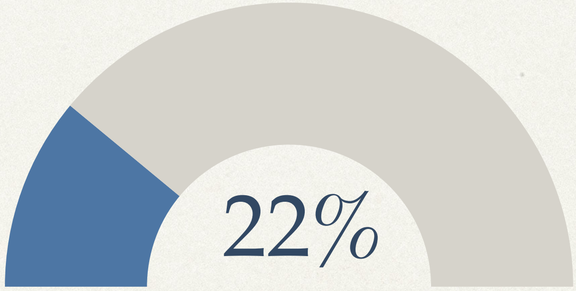
Frequency of Destructive Criticism

	Nonspecific	Inconsiderate
Report to Give		
Report to Receive		

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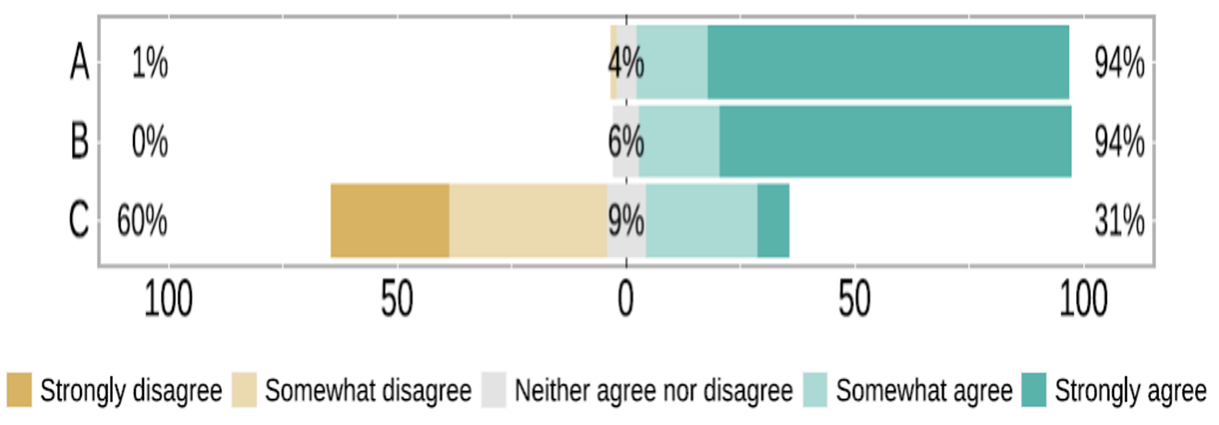
General opinions on destructive criticism



***'this is a hack' is not negative at all in my books**. In technical discussions, I prefer **direct wording** to have-a-good-day sugar-coated expressions. It's just **easier to parse and act upon**, though may sometimes **appear harsh or inconsiderate**.*

A - *"Destructive criticism is harmful"*
B - *"Destructive criticism will cause a negative reaction for the recipient"*
C - *"When receiving code review comments, I don't mind getting inconsiderate feedback as long as the feedback helps to improve the code quality"*

*"I think it's important to indicate when the code is bad, but it **should be communicated in a considerate way** and the reviewer should explain why the code is bad so that the person can learn.*

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Demographic differences

Variable	Destructive criticism is appropriate		Motivation to work with the developer after destructive criticism		Don't mind getting destructive feedback if improves code quality	
	Value	*SE*	*Value*	*SE*	*Value*	*SE*
gender (non-binary)	-1.45	1.46	0.14	1.37	0.36	1.32
gender (woman)	**-1.13** *	**0.48**	**-1.24** **	**0.47**	**-1.54****	**0.46**
experience in years	0.03	0.04	0.01	0.04	-0.05	0.04
self-efficacy score	-0.49	0.52	-0.16	0.51	0.54	0.49
education (undergraduate)	0.34	0.84	0.95	0.87	0.42	0.80
education (postgraduate)	-0.45	0.86	1.26	0.84	0.24	0.79
has contributed to OSS	0.52	0.47	-0.41	0.47	0.45	0.44
competence (mod. high)	0.11	0.63	0.43	0.58	-0.29	0.59
competence (high)	1.03	0.84	-0.40	0.79	-0.07	0.75
is a student	0.79	0.74	0.48	0.72	0.98	0.74

Ordinal regression models

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Conclusion

- Destructive criticism in code review has negative impact
- Greater impact on women
- Conflicting opinions on destructive criticism
- How can we reimagine code review and other software practices to center DEI?
- More research needed

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