

IEEE VIS Reviewing

On a Path to Self-Destruction?

IEEE VIS 2025 Panel

Organized by: Petra Isenberg, Narges Mahyar, Gunther Weber, Niklas Elmqvist

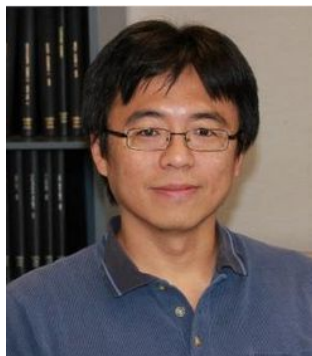
Welcome to our panelists



Helwig Hauser
Former OPC, EiC of
Computer Graphics
Forum



Tamara Munzner
Former OPC, EuroVis,
InfoVis paper chair



Han-Wei Shen
Former EiC of TVCG



Michael Sedlmair
Former APC, current
ACM CHI Visualization
subcommittee chair



Melanie Tory
Current OPC,
former InfoVis
paper chair



Bei Wang
Current EuroVis
paper chair,
associate editor at
TVCG

our panelists have read more reviews
than most people have unread emails

Why this panel?

Scientific communication in our field has been disrupted

- Several remote / hybrid conferences, fewer face-to-face meetings
- Some changes to the process (area model, reviewer count, student reviewers)

→ we haven't yet taken a look at core selection mechanism

It's time to review the reviews that we as a community write and send out

Why this title?

IEEE VIS Reviewing: **On a Path to Self-Destruction?**

- Panels need provocative titles
- Our reviews impact our collective intellectual progress

Alternative (maybe better) title:

IEEE VIS Reviewing: **Strengthening quality and community**

Panel goals

Discuss the content of reviews:

- reflect on our practices and biases
- discuss what we (should) value

The panel is not about the process of reviewing:

- different reviewing models, rebuttals, anonymity, open reviewing, ...

IEEE VIS Reviewing Survey

October 2025...

IEEE VIS Full Paper Reviewing Feedback

This form is meant to collect your subjective feedback about the content of full paper reviews you have received for your IEEE VIS reviews (this year or in the past).

Please **focus on the content** (what reviewers wrote) of your **recent reviews** and avoid comments regarding the reviewing process (anonymous vs. not, 3 vs. 4 reviewers, etc.).

This survey is part of data collection for an IEEE VIS 25 Panel entitled: "IEEE VIS Reviewing — On a Path to Self-Destruction?" organized by:

- Petra Isenberg (Inria, Université Paris-Saclay)
- Gunther Weber (Lawrence Berkeley National Laboratory)
- Niklas Elmqvist (Aarhus University)
- Narges Mahyar (City St. George's, University of London)

Only respond to this survey if you have submitted an IEEE VIS full paper in the past and read the reviews you received.

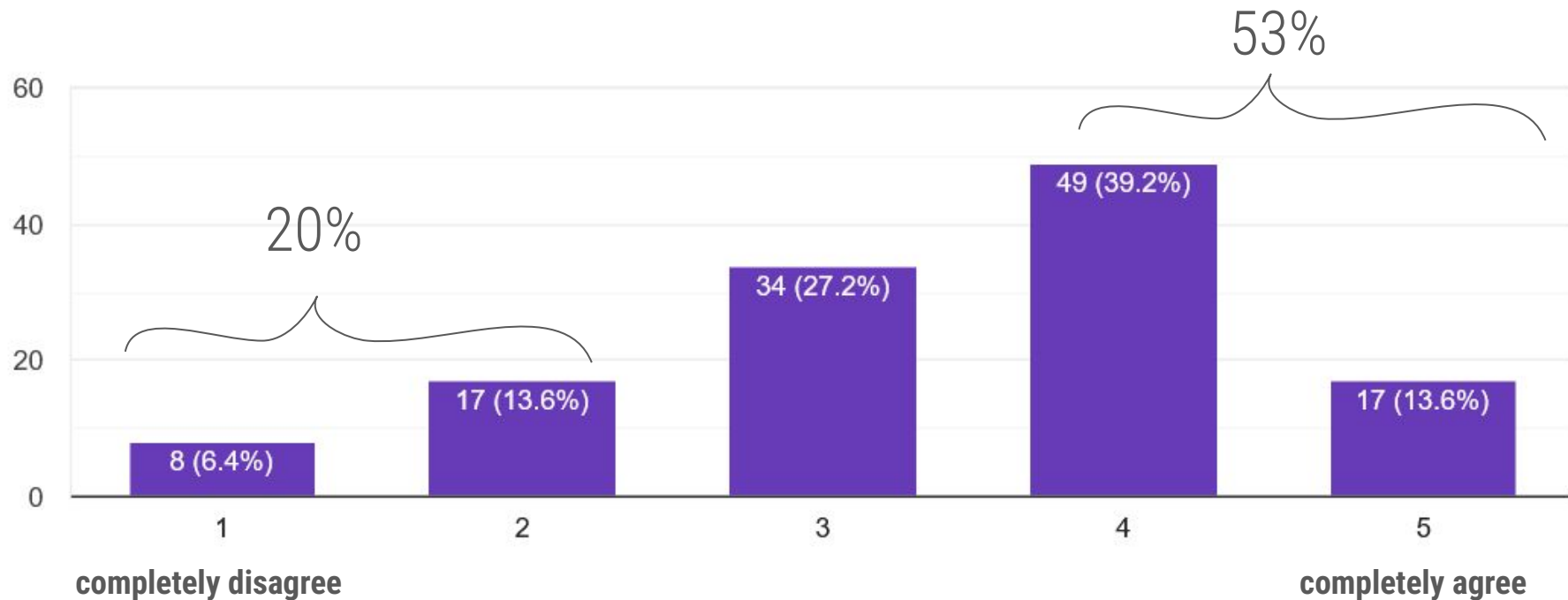
* Indicates required question



125 responses
at analysis time

The good news

On average, I am satisfied with the quality of my IEEE VIS reviews



What respondents appreciated about their reviews

Constructive and helpful content

Detail, length, depth of reviews

Summaries and recommendations in **meta reviews**

...

Yet, everyone had points of concern...

The Grievances

and how could we do better?

Main themes of concern

61 respondents

Review quality

50 respondents

Decision criteria

40 respondents

Decision process



decision criteria

gatekeeping and conservatism

“Reviewers should be guiding the scientific process,
not **gatekeeping** it based on **personal preferences**.”

Anonymous survey respondent

Notes from Petra

this is a hidden slide

Notes on comments related to **gatekeeping**:

- Several authors voiced concerns about being welcome at VIS or not. Some clearly stated that they intend to leave
- Feelings of gatekeeping seemed to correlate with seemingly unfair or overly harsh decision criteria being applied, including the concern of “what about’ism” -> why didn’t you also do x and y and z.
- Gatekeeping was also expressed under the umbrella of “conservatism” - VIS reviewers not being open to new approaches / methodologies, topics “VIS reviewers value safe, consolidated, and boring results over creative, innovative, and unorthodox contributions.”
- Some authors mentioned that there is a disciplinary bias where their domain terminology was criticized

Michael

My background

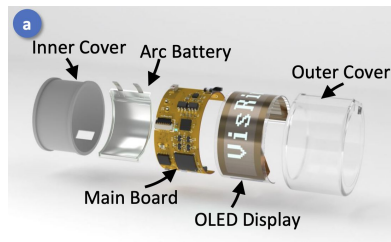
- VIS, CHI, ISMAR
- Often working on topics at the intersection (not “core” in any)

Observations

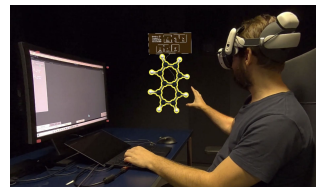
- More of the same **over** novel ideas/work
- Subj. opinions (“what about’ism”) **over** obj. quality & formative support
- Career system **over** scientific communication

Concerns

- Efficiency? Time to publication? How many cycles for “quality”?
- Novelty? Relevance of the field?
- A never-ending story [1,2,3, ...]
- Side note: other communities have similar issues



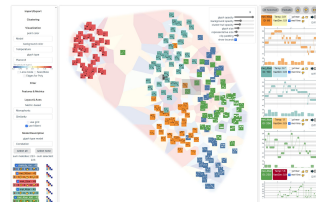
VisRing @UIST 25



Hybrid UIs @CHI 25



MusicVis @ISMAR 23



MusicVis @TVCG 25

[1] Jarke van Wijk, 2013. Capstone at IEEE VIS “The tyranny of evaluation”.

[2] Bongshin Lee, [...] Melanie Tory, et al., 2019. Broadening intellectual diversity in visualization research papers. IEEE CG&A.

[3] Niklas Elmqvist, 2025. “This Is Not Vis”, Medium.



decision process

intransparent discussion process

“there were frustrating experiences
esp. with decisions **hidden behind
reviewer discussions** that led to
reviewers changing scores but not
the reviews and nothing fitting
together in the end”

Anonymous survey respondent

Notes from Petra

this is a hidden slide

Notes on comments related to **discussions and changing scores**:

- Reviews and final scores seemingly don't match sometimes. Did they change during the discussion and the review did not?
- Authors asked to see scores before/after discussion. A few people asked to see the discussion or at least a summary of it (=more transparency regarding discussion)
- Decisions aren't clear
- It seemed difficult to engage reviewers in discussions in the first place
- Single, often very negative, reviewers seem to dominate the discussion and sway the other reviewers towards reject

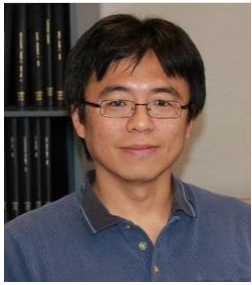
Some food for some thoughts, discussion?

It's always good to think about improvements –
but let's not forget what's (very) good, already!

Individuals dominating the discussion after reviewing:
shifting the focus towards criticism?

Keeping pre-discussion scores, or not?
I'd rather strongly argue for it (with exceptions, of course)

How to improve transparency / consistency even further –
esp. wrt. the discussion and what it adds to the reviews



decision process

perceived randomness of the decision

“there is a heavy **random component** in the reviewing process, and the common opinion I've heard around is that you just have to accept it”

Anonymous survey respondent

Notes from Petra

this is a hidden slide

Notes on comments related to randomness were:

- Reviewers didn't agree / said conflicting things
- Reviewers in one round rejected for one thing, in the next round new reviewers commented on other things
- Reviews are based on personal preference or reviewer bias
- Reviewers apply different standards
- Large variability in review quality among reviewers

**Where there is a wish,
there is a way**

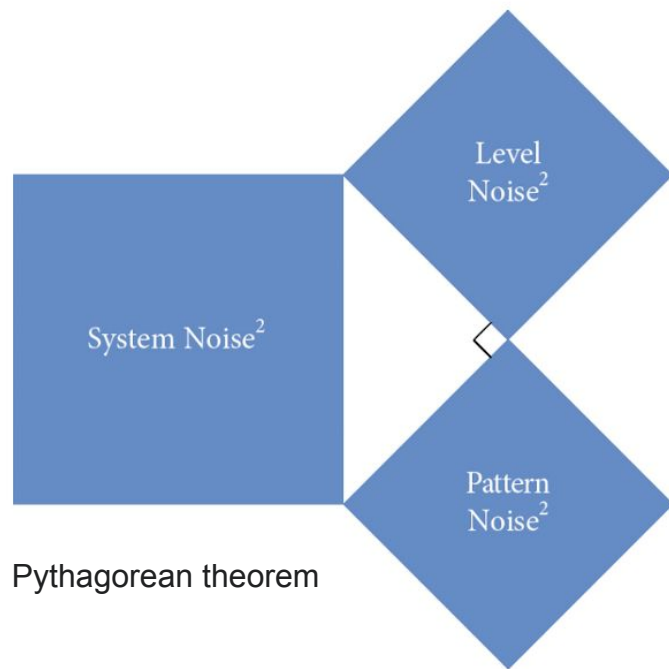


**Where there is judgement, there is
noise**



Your Mind is a Measuring Device

- **System Noise** = **Level Noise²** + **Pattern Noise²**
- **Level Noise:** Variability in the average level of judgement by different reviewers
- **Patter Noise:** variability in reviewers' responses in particular cases



Pythagorean theorem

***In a perfect world, papers would face justice,
in our world, papers would face a noisy system***

	Case A	Case B	Case C
Judge 1	0.5	1.5	--
Judge 2	2.0	--	5.5
Judge 3	1.5	1.8	4.0

Judge 207	1.0	0.5	3.0
Judge 208	0.5	0.3	4.0
Mean Sentence for Case	1.0	1.1	3.7

SD in
typical
case:
3.4 y.

Case O	Case P	Judge Mean
13.5	12.0	6.6
17.5	20.0	8.4
15.0	14.0	5.0

16.0	10.0	7.3
25.5	20.0	8.7
12.2	15.3	7.0

SD of
judge
means:
2.4 y.

- Variability in the average level of judgement by different reviewers

Level Noise

	Case A	Case B	Case C
Judge 1	0.5	1.5	--
Judge 2	2.0	5.5	--
Judge 3	1.5	1.8	4.0

SD in
typical
case:
3.4 y.

Case O	Case P	Judge Mean
13.5	12.0	6.6
17.5	20.0	8.4
15.0	14.0	5.0
16.0	10.0	7.3
25.5	20.0	8.7
12.2	15.3	7.0

SD of
judge
means:
2.4 y.

Judge 207	1.0	0.5	3.0
Judge 208	0.5	0.3	4.0
Mean Sentence for Case	1.0	1.1	3.7

	Case A	Case B	Case C
Judge 1	0.5	1.5	--
Judge 2	2.0	--	5.5
Judge 3	1.5	1.8	4.0

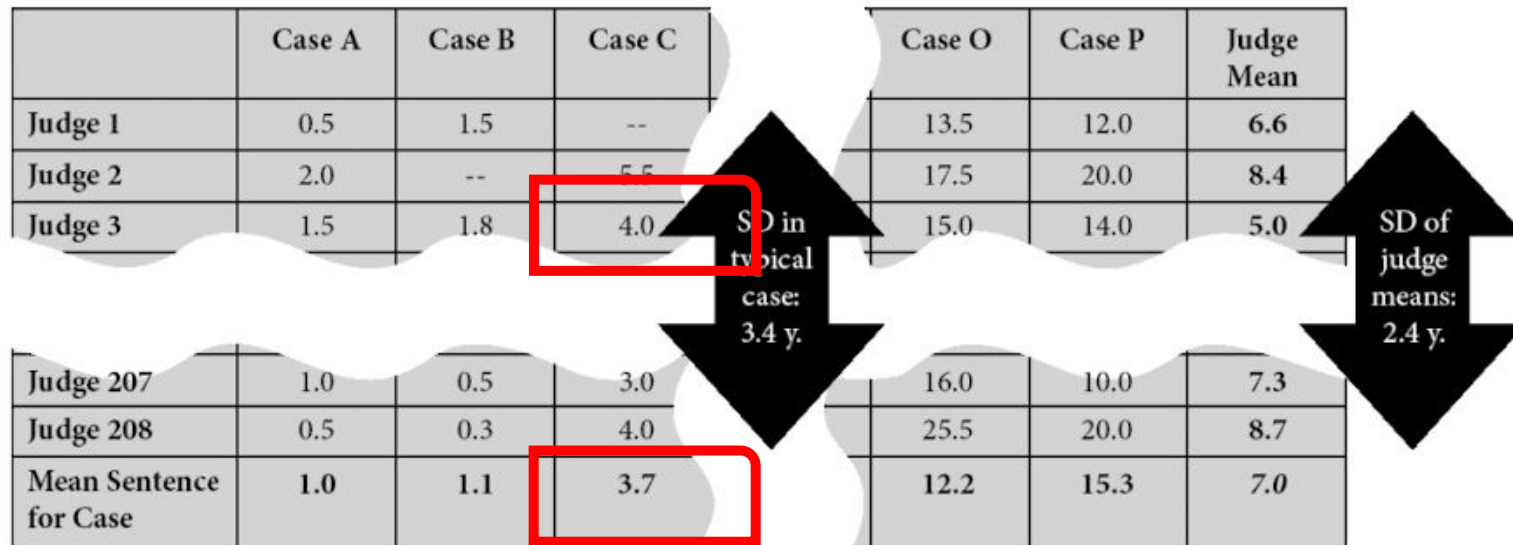
SD in
typical
case:
3.4 y.

Judge 207	1.0	0.5	3.0
Judge 208	0.5	0.3	4.0
Mean Sentence for Case	1.0	1.1	3.7

Case O	Case P	Judge Mean
13.5	12.0	6.6
17.5	20.0	8.4
15.0	14.0	5.0

SD of
judge
means:
2.4 y.

16.0	10.0	7.3
25.5	20.0	8.7
12.2	15.3	7.0



- variability in reviewers' responses in particular cases **Pattern Noise**

Occasional Noise

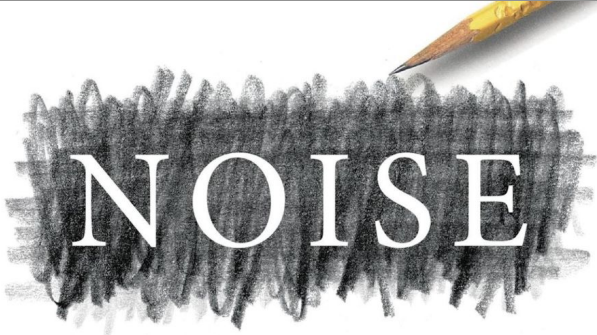
- Part of the pattern noise
- Variability in free throws
- Source of occasional noise
 - Mood
 - Stress or Fatigue
 - Sequence effects: order in which papers are reviewed
- Not as large as system noise



Groups Can Amplify Noise

- Who speaks first, who speaks last, who speaks with confidence, who smiles, etc.
- Initial up/down votes
- **Cascades**
- **Group Polarization**





NOISE

A Flaw in Human Judgment

DANIEL
KAHNEMAN

AUTHOR OF *THINKING, FAST AND SLOW*

OLIVIER
SIBONY

CASS R.
SUNSTEIN



review quality

reviewer expertise

“I received a review from a reviewer that was obviously **unqualified** to review the work”

Anonymous survey respondent

Notes from Petra

this is a hidden slide

Notes on comments related to **experience of reviewers** were:

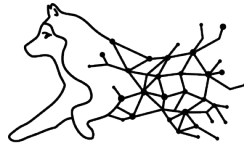
- Reviewers who were experts on parts of the paper but commented on other aspects (e.g. experts in the algorithms but not the evaluation)
- Seemingly undergrads reviewing
- Literature that was recommended but the reviewers didn't seem to have actually read that literature themselves (it wasn't relevant)
- Reviews are not constructive/helpful but shallow and over-general
- Reviewers didn't seem to have carefully read the paper
- Reviewers make mistakes
- Criticism isn't clear

VIS Reviewing: Insights from OPC

Melanie Tory

m.tory@northeastern.edu

November 2025



vis lab
Northeastern



New at VIS this year

“Student” reviewers – for training

- Mentored by the primary (often their own student)
- No weight in review scores
- In 2025: 99 student reviews / 537 papers

Advice for PC Members

2025 onslaught of “fake”, unqualified reviewers in PCS

Take care in inviting externals!

- Do not rely only on PCS
- Make sure you know the person, or look up their past research

Summary reviews should not be an average – use your own expertise and judgment

Advice for all reviewers

- Be open to many kinds of contributions

"This isn't a VIS paper"

"This isn't a ____ area paper"



- Look for the good in the work, don't just pick on the flaws
- Don't expect one paper to do everything
- Participate in review discussions



Addressing the issue: Reviews that are rude, unfair, disrespectful

“I have been in the community for a bit less than 15 years, and I think that **we are getting more and more hostile** with each other, and that the reviews are getting **harsher and harsher** (in their phrasing and in the way that feedback is communicated; often it feels **destructive** rather than constructive).”

Anonymous survey respondent

In a recent review the primary (!) was **unnecessary snarky** [..]. The review had an extremely **negative effect on the PhD candidate** lead author, to the point that they basically abandoned the project.

Discussion points

- Review fatigue
 - More submissions, but even more refusals to review.
- Harsh gatekeeping
 - Zero sum game or **is it?**
 - “This is not a vis paper”
 - **Instead, be open-minded about the diverse topics in the field (VIS intersects AI, data science, NLP, databases, psychology, and many more)**
- **Constructive reviewing**
 - Honest self-reflection: **Am I an expert in the subject matter?** Am I a qualified reviewer of the paper? Can I deliver an unbiased (COI?), high-quality review? Am I pressed for time? Am I hangry?

Harsh Gatekeeping

- Overly negative, rigid, or biased reviews
- Hinder the fair evaluation of innovative and interdisciplinary research
- “I believe...”, “I feel...” Reviewing process is not a religion
- **Instead, provide evidence-based critiques**

Constructive Reviews

Respectful (addressing the work, not the person)

Actionable (offering suggestions for improvement)

Specific (referencing particular sections)

Balanced (stating strengths and weaknesses)

Grounded (based on evidence, logic, and domain knowledge)

Positive Framing and Evidence-Based Critique

“The authors clearly do not understand...”

“The method section lacks justification for the parameter choices, adding an ablation study could strengthen this section...”

“The authors did not provide enough references in the field.”

“The paper could be greatly improved if it includes a review of the state-of-the-art methods detailed below (adding citations)”

Positive Framing

“This should never have been submitted.”

“I recommend to revise to address (certain concrete issues)...”

“The paper is pointless.”

“The argument could be strengthened by (concrete suggestions for improvement)...”

What is constructive reviewing?

EDITORIAL

Writing a constructive peer review: a young PI perspective

Belin David^{1,2} and Ragnhildur Thora Karadottir^{1,3}

¹ FENS-Kavli Network of Excellence, Europe-Wide

² Department of Psychology, University of Cambridge, Downing Street, Cambridge CB3 2EB, UK

³ Wellcome Trust – Medical Research Council Cambridge Stem Cell Institute, University of Cambridge, Cambridge, UK

Notes from Petra

this is a hidden slide

Notes on comments related to **toxicity** were:

- Reviews are an emotional experience that impacts how people deal with the reviews (see comment on previous slide) → e.g. their confidence as a researcher
- A handful of authors mentioned wanting to leave the community and submit elsewhere “Yes it made me stop submitting there as the culture is toxic”
- One respondent commented that this also applies to invitations to the PC (you can’t participate if you don’t do x amount of work)
- Reviewer fatigue was mentioned as a possible explanation
- Reviewers don’t say enough positive about a paper
- Toxicity also seems to be related to feelings of being treated unfairly (unclear or overly harsh decision criteria “Reading VIS reviews feels like stepping onto a shooting range”

What is constructive reviewing?



The Association of
Learned & Professional
Society Publishers

RESEARCH ARTICLE

(wileyonlinelibrary.com) doi: 10.1002/leap.1222

Received: 6 August 2018

| Accepted: 7 December 2018

| Published online in Wiley Online Library: 10 January 2019

What does better peer review look like? Underlying principles and recommendations for better practice

Heidi Allen, Alexandra Cury, Thomas Gaston ^{*}, Chris Graf, Hannah Wakley, and Michael Willis 

Best practices for peer reviews (Allen et al. 2019)

Content Integrity: peer review establishes that the work is reliable and potentially reproducible.

Content Ethics: peer review establishes that the work was conducted ethically.

Fairness: peer review is objective and impartial.

Usefulness: peer review is constructive and helpful

Timeliness: peer review provides timely feedback for authors.

Fairness (Allen et al. 2019)

“It might be argued that open and/or transparent peer review provides an alternative mechanism for reducing reviewer bias (Ross-Hellauer, 2017). If reviewers are made accountable for their recommendations that might reduce conscious attempts to influence outcomes unjustifiably. It may even have an impact on unconscious biases. To date, the evidence does not exist to substantiate these intuitions, and so, again, we are unable to make an evidenced-based recommendation in favour of open peer review. We welcome ongoing research into peer review models.”



review quality

the role and impact of the primary

I think the **lack of vetting of review quality** from the primary reviewer, and the lack of avenues to appeal reviews is problematic.

Anonymous survey respondent



When reviewing I also experienced that the discussion and outcome was **mostly determined by the primary reviewer**. Disregarding points raised by other reviewers.

Anonymous survey respondent

Notes from Petra

this is a hidden slide

Notes on comments related to **what people wished reviewers would do** (and maybe primaries could check) ordered by frequency:

- Keep an open mind
- Be rigorous and constructive in your review (btw, the summary reviews were seen as one of the most positive aspects of VIS reviews)
- Focus on the main contributions/advancements to the field (not on small details)
- Be kind/polite, re-read your review before submission, think about the people on the receiving end
- Take your time! (this is related to trying to avoid, spot, and report errors in reviews -> I think pointing out errors in others' reviews is one of the hardest things to do for new/junior primaries.) Also authors asked for reviewers to read revision reports, supplementary material

Role and duty of PC: advice to new-ish members

- strong opinions, loosely held
- all
 - do use entire 1-5 range
 - 1 does not mean worthless, means you 'strongly argue against acceptance'
 - 5 does not mean perfect, means you 'strongly argue for acceptance'
 - do update views after reading other reviews and discussion
 - only change text and/or scores if you're actually convinced by arguments! and ensure they align
 - your job is not to reach consensus for its own sake or go along with peer pressure

Role and duty of PC: advice to new-ish members

- primary
 - discussion: always start with explicit summary of initial scores
 - papers chairs need that baseline to understand discussion context, since they often change
 - meta-review: do make calls about mandatory vs optional vs overruled
 - do not just summarize like robot, your job is to exercise professional judgement
 - review quality control: ask reviewers to update so final text does align with final scores
 - best if main points from discussion are back-ported into review itself, by each reviewer

Q & A

Questions from the audience

Closing slides



What authors are hoping for from reviewers

based on coding the anonymous survey responses

#1 wish

Keep an open mind

Regarding: methods, topics, technology, ...

Be rigorous and constructive in your review

Constructive summary reviews with suggestions for improvement were seen as one of the most positive aspects of IEEE VIS review

Do not debug papers

Focus on the main contributions/advancements
to the field

Be kind/polite

Re-read your review before submission
think about the people on the receiving end

Take your time!

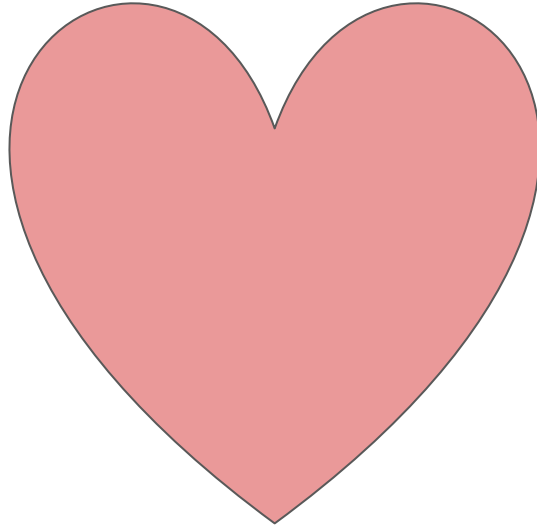
Read the entire paper

Read revision reports

Look at the supplementary material
(people often put a lot of work into them)

**Thank you for all the time and effort you put to
provide valuable feedback!**

Anonymous survey respondent
(with many similar quotes in the survey)



Link to these slides and additional data from survey



Additional data

Issues Ratings

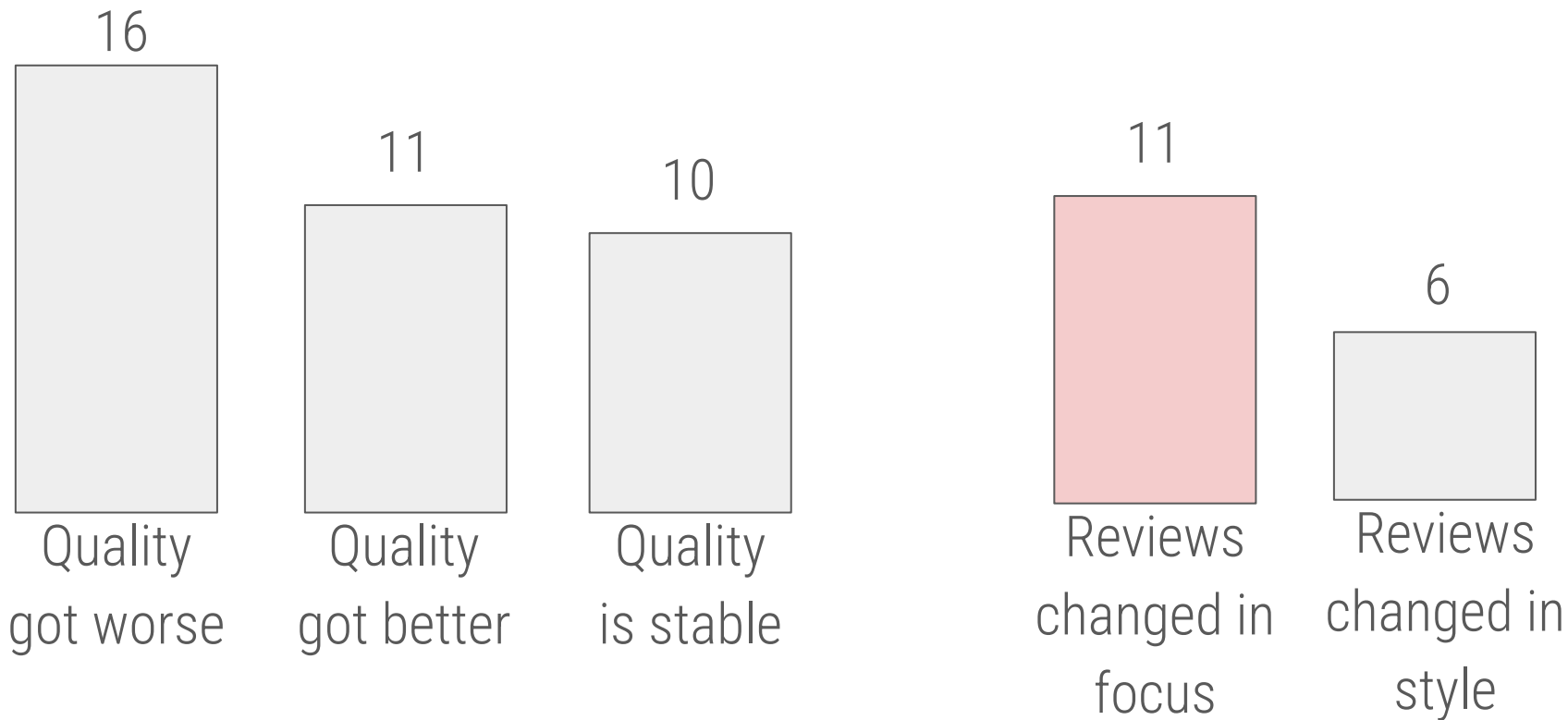
Always
Frequently
Some of the time
Seldom
Never

Legend

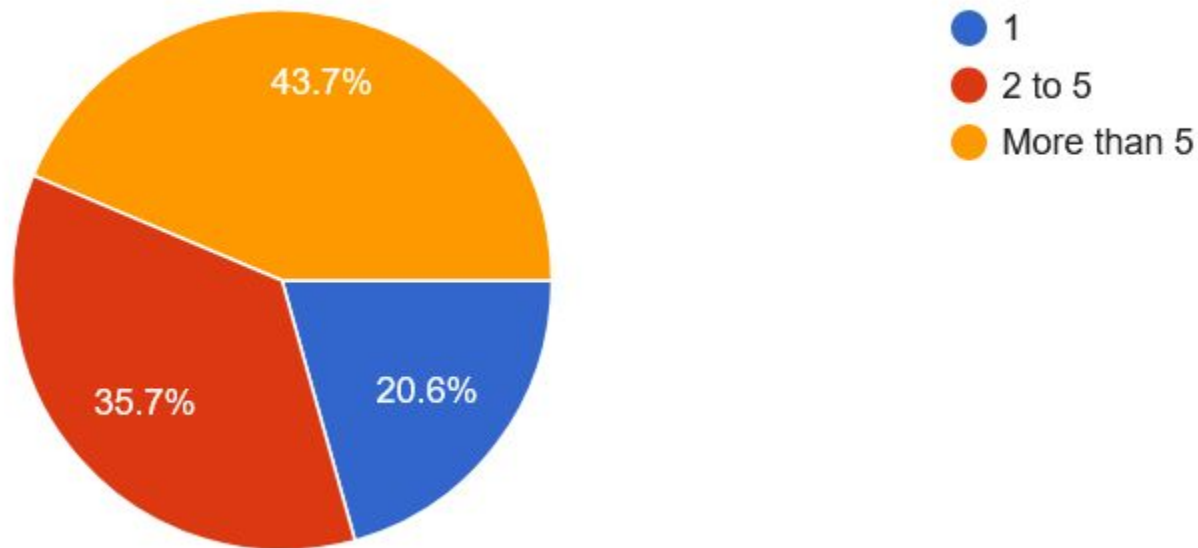
Issue	Median	Mode
Reviewers don't have the required expertise	Seldom	Seldom
My work was judged as incremental	Seldom	Never
My work was judged as out of scope	Never	Never
Reviewers expected guidelines	Seldom	Seldom
Review fixated on minor flaws	Some of the time	Some of the time
Reviewer bias present in review	Some of the time	Some of the time
Review was not helpful	Seldom	Seldom
Couldn't understand basis for decision	Seldom	Seldom
Final score and review content did not match	Seldom	Seldom
Review was disrespectful	Seldom	Never
Review was generic and vague	Seldom	Seldom
Review seemed to have been generated by AI	Never	Never

How have reviews changed over time?

Warning: few respondents for this question

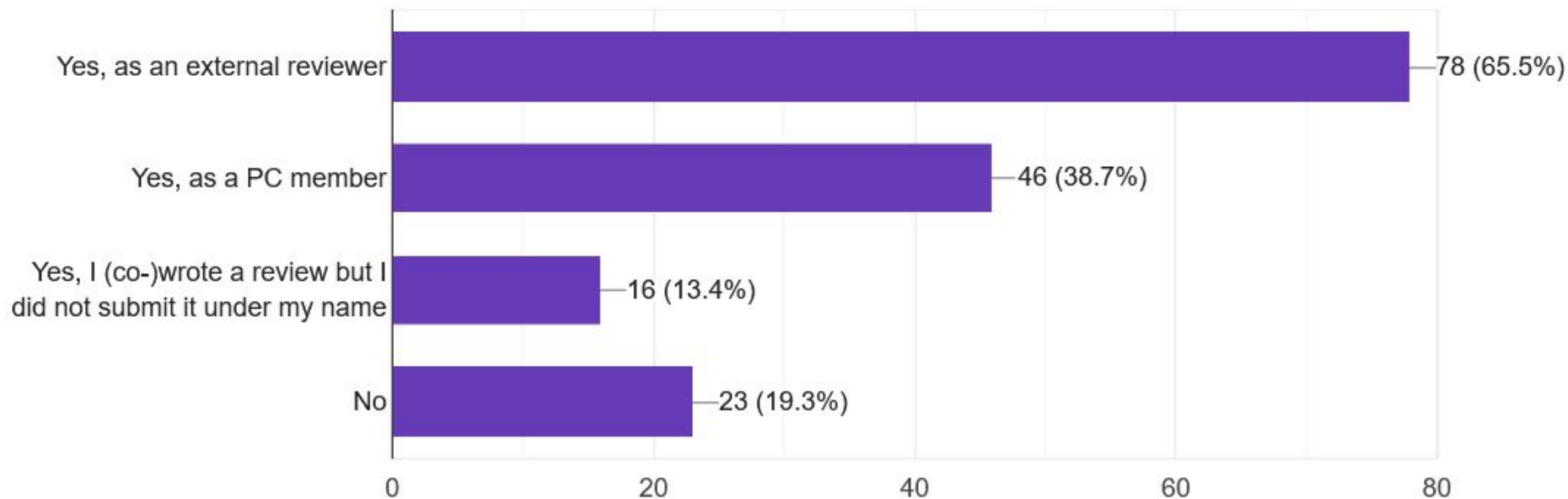


How many papers have you submitted to IEEE VIS in the past?



for 126 respondents but only the first 125 qualitatively analyzed

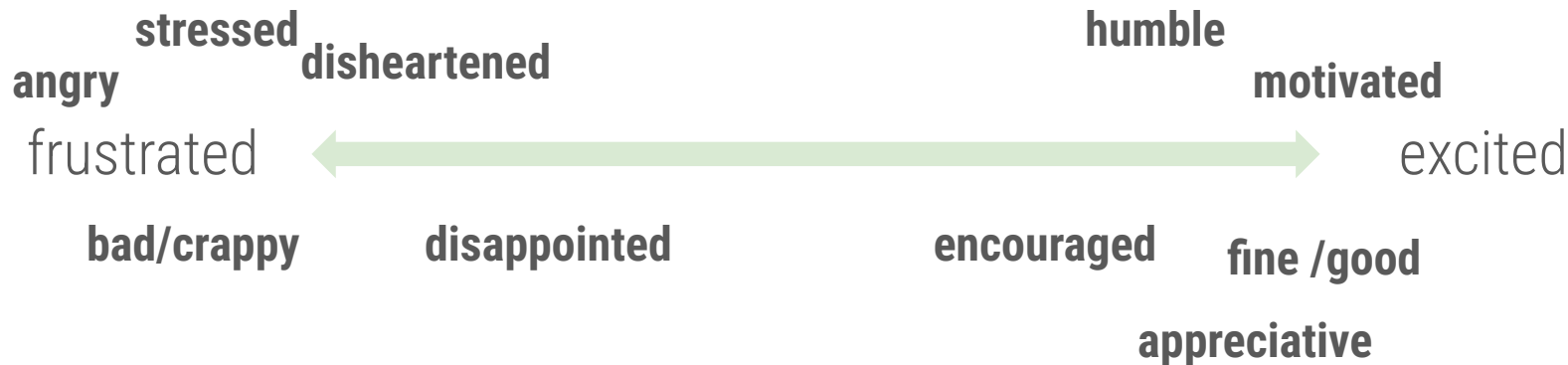
Have you submitted reviews for IEEE VIS in the past?



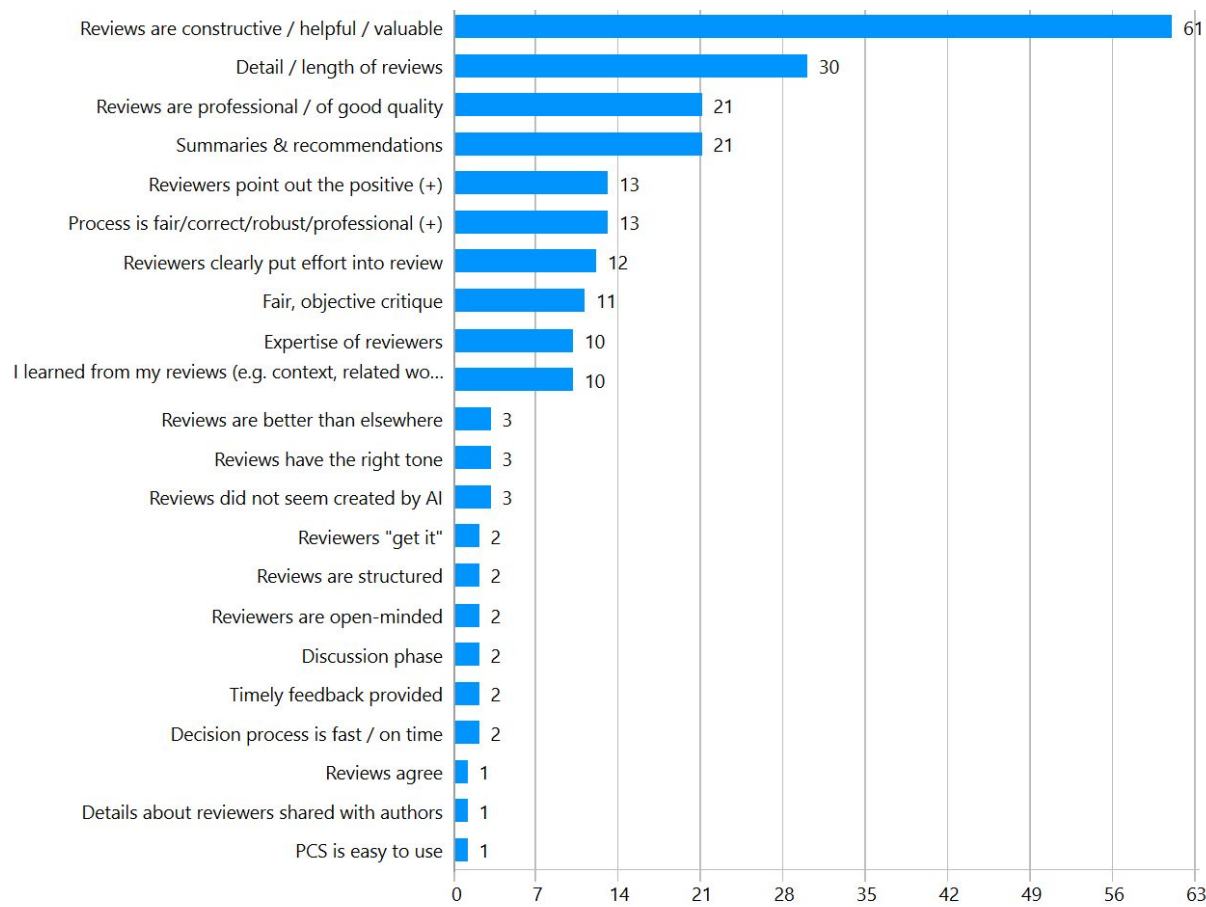
Peer review as a social & emotional process

Emotional experience will affect how reviewers engage with the feedback, the community, and this will impact their careers.

Here are feelings respondents expressed having had upon receiving their reviews:

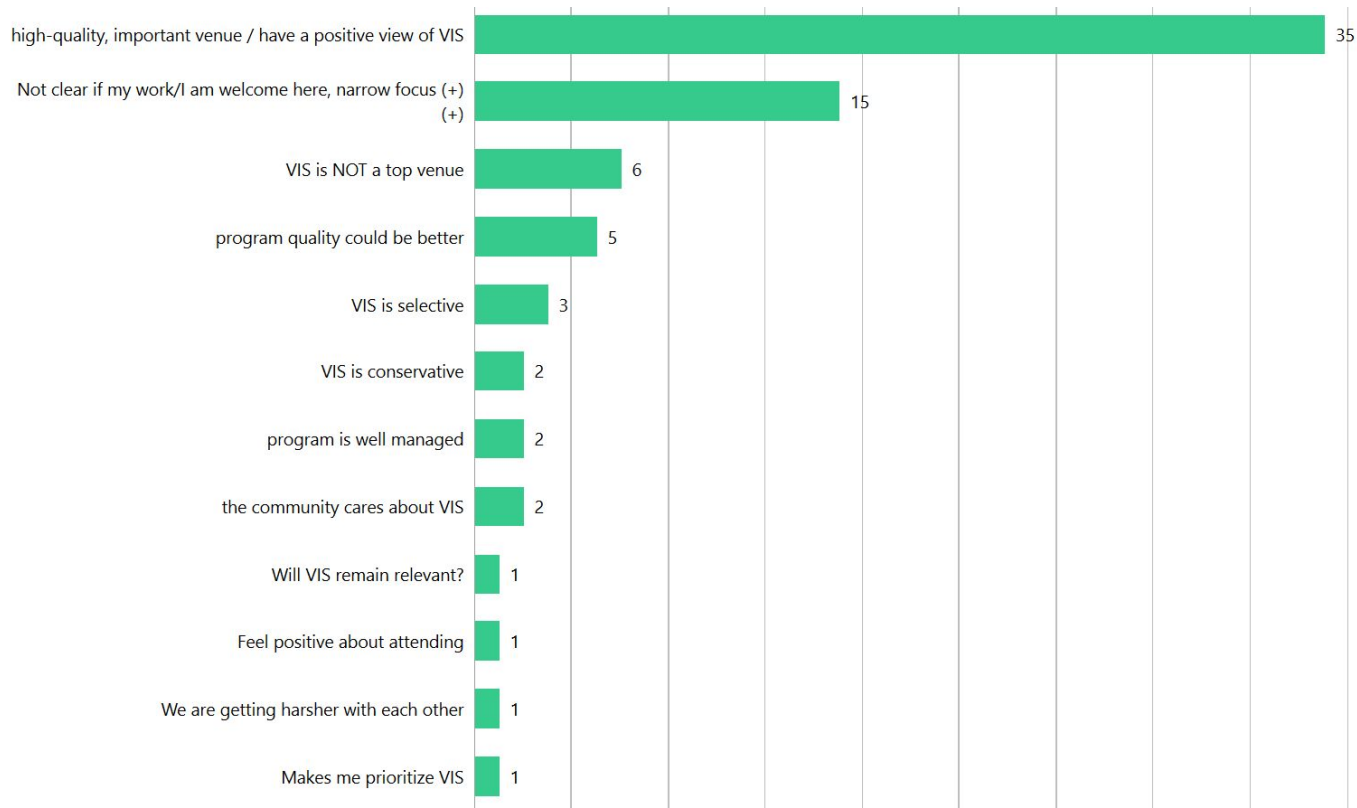


Additional data on “what works”



Counts are number of respondents per code

Details: perception on VIS as a conference based on reviews received

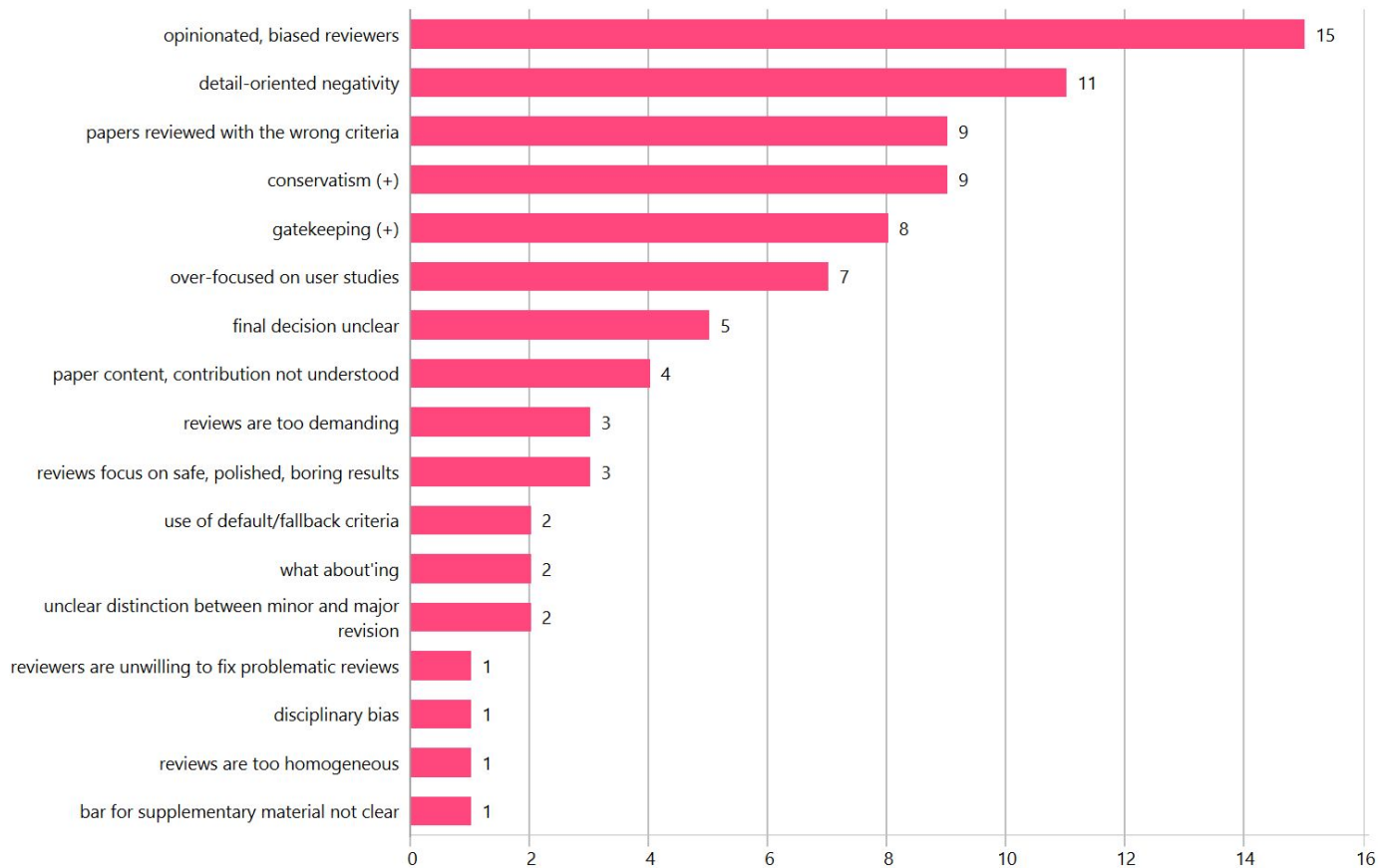


Counts are
number of
respondents per
code

Themes of concern

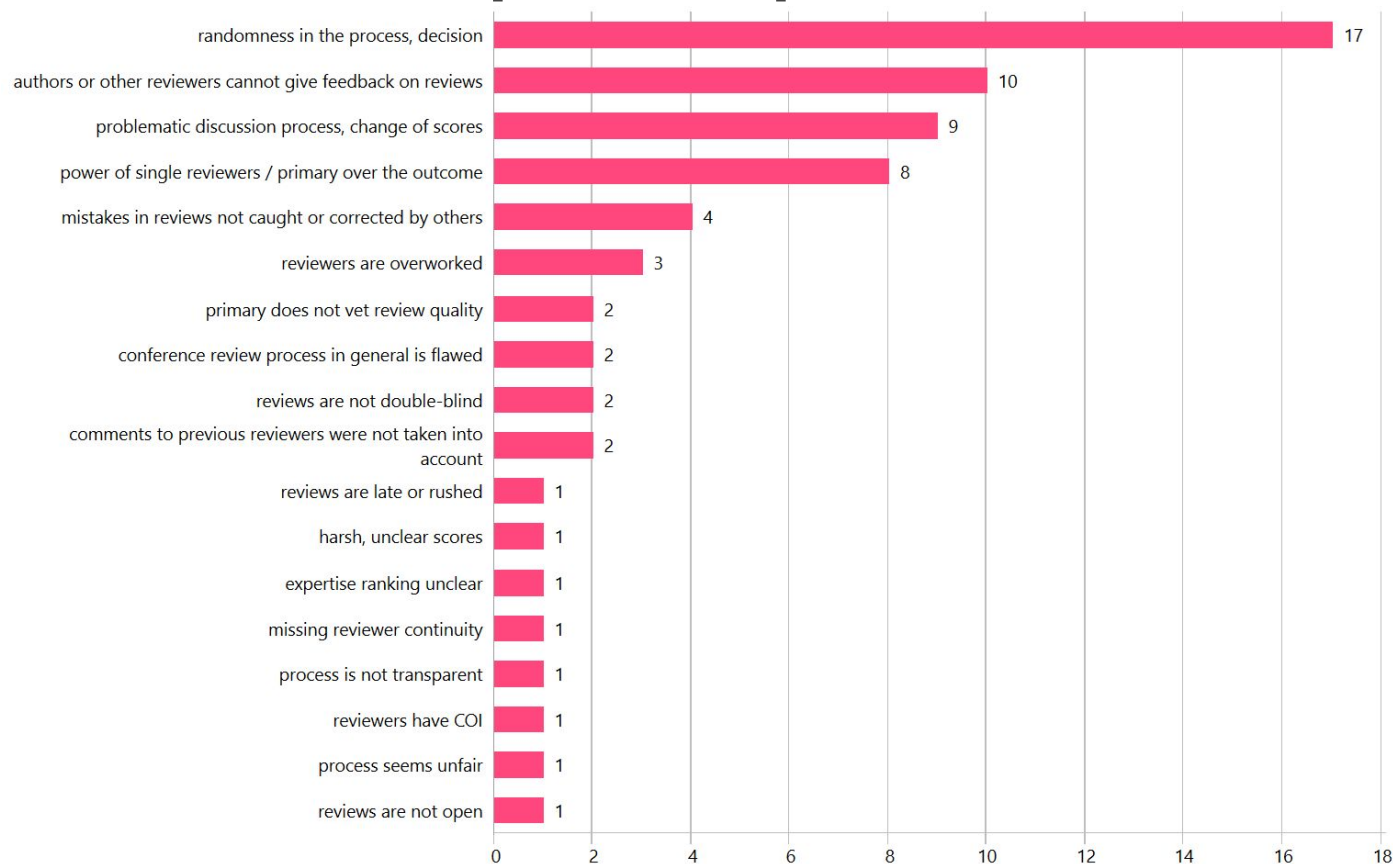
- Problematic **decision criteria**
 - Opinionated / biased reviewer
 - Gatekeeping and conservatism
 - Detail-oriented negativity (nitpicking)
- Problem with the **decision process**
 - Perceived randomness of the decision
 - Intransparent discussion process
 - Power of single reviewers over the decision
- Problems with **review quality**
 - Paper was not read carefully
 - Unethical use of technology (LLMs)
 - Reviewers were not experts / knowledgeable
 - Reviews that are rude, unfair, disrespectful

Detail: problem with decision criteria



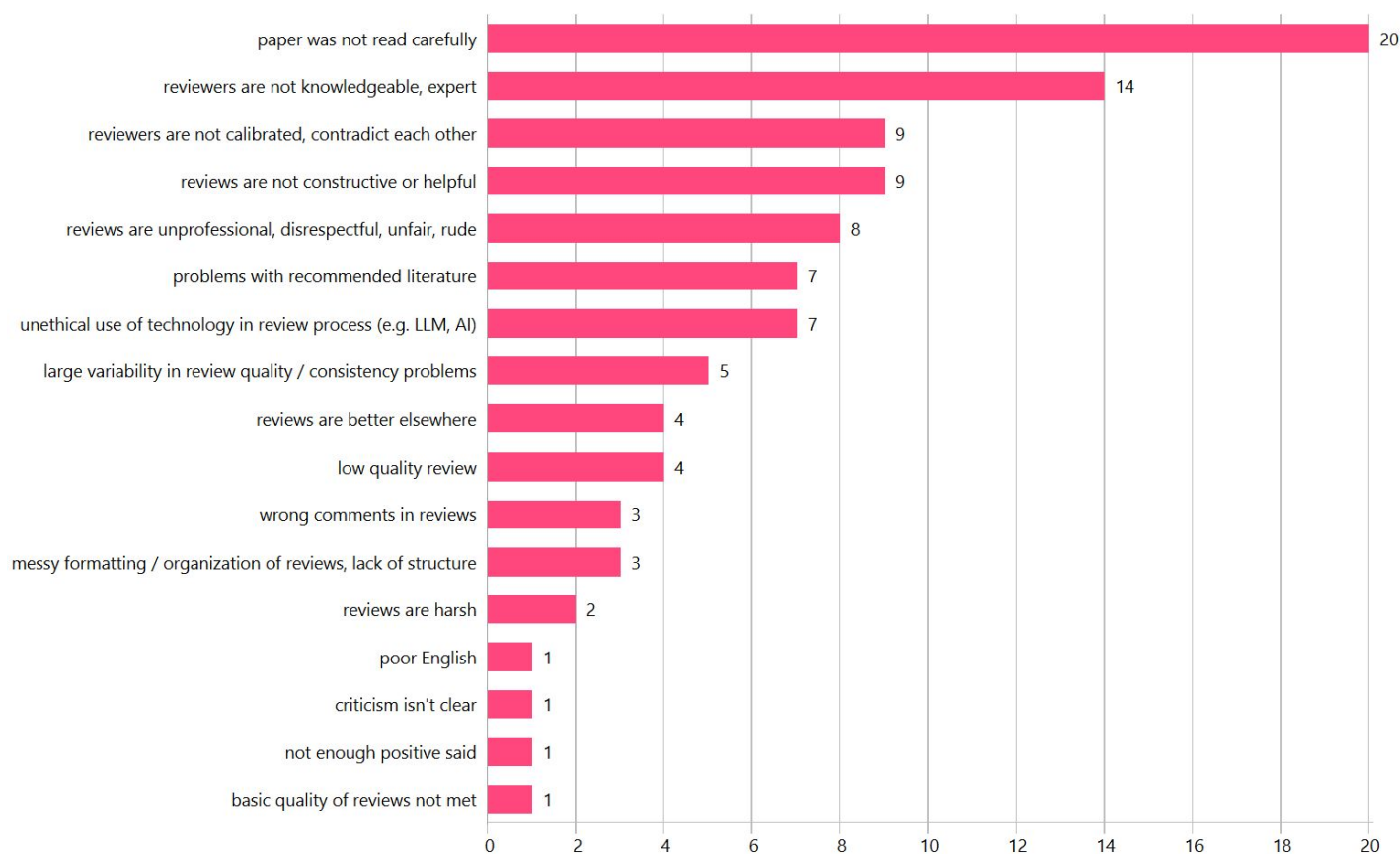
Counts are
number of
respondents per
code

Detail: review process problems



Counts are
number of
respondents per
code

Detail: review quality problems



Counts are
number of
respondents per
code

Comments to ponder

Are we open/welcoming enough ?

*It makes me feel torn because **I want to be a part of this community**, but if there is not an avenue for **having the research methods I use evaluated fairly / appropriately**, then the only option for timely dissemination of results is through a different disciplinary journal—which works against my core values of interdisciplinary work.*

*It makes me think that VIS is a somewhat **exclusive, closed venue***

Do we see effects of merging InfoVis, VAST, SciVis → VIS?

*Some comments were useful. However, merging 3 conferences into a single one substantially mixed the pool of reviewers, and now **VAST-style papers are often evaluated using InfoVis or even CHI criteria and requirements.***

*Before the VIS merging, the reviews were **referencing a core body of evolving work and standards, now it's more or less random.** A couple of years ago, I had the feeling I could tell at submission time if a paper would have a good chance to get accepted or even considered for an award; now the ones I would consider the most groundbreaking get rejected and the incremental (less innovative and more predictable) ones get accepted. It is a huge problem.*

More rigidity, good or bad?

*The field evolved along the idea of more rigidity in the visualization design process. I feel that this causes **a shift of focus in papers** from a "primacy of ideas" to a "primacy of proof". (Not entirely bad or good.)*

Requests for changes

Some respondents wrote down ideas or wishes for changes in the process. This was not a dedicated question on the questionnaire so there were only few of these comments.

Change requests

Give reviewers a guide

Require reviewers to explain change of scores

Get feedback before submissions, not just after

Need better tools to do reviews

More time for revisions & reviews

Limit the number of papers submitted by a single author

More accountability for primaries

Be upfront about requirements

Give authors a chance to respond to reviewers

Several people expressed a wish to be able to respond to reviewers in various forms:

*I think that implementing **a rebuttal process** would help, so that factual errors can be addressed. I know that the timing is not ideal.*

*As a PC and external reviewer I would love to see more **primary reviewers rate the externals**.*

*I think the lack of **vetting of review quality from the primary reviewer**, and the lack of **avenues to appeal** reviews is problematic.*

*Sometimes, I would have appreciated the possibility to **communicate with the reviewers** to quickly respond to some issues raised.*

Top take-home messages from respondents

If you could let IEEE VIS reviewers know one thing, what would it be?

Your answer

Take-home messages

Authors look for:

Fairness and consistency

*Reviewers should **remain open-minded and supportive of innovation in methods, conclusions, and research topics.***

Anonymous survey respondent

Take-home messages

Authors look for:

Constructive & balanced feedback

*"Focus on the question, "Does this paper **advance the knowledge of visualization as a field**?" rather than, "Are there any bugs or flaws with this paper?"*

Anonymous survey respondent

Take-home messages

Authors look for:

Respect & professionalism

*“Be as objective as possible and **don't be too harsh**. Usually, a 2 is sufficient to reject a paper; there is no need to go for a 1 or 1.5. The only exception would be scientific misconduct.”*

Anonymous survey respondent

Take-home messages

Authors look for:

Thoroughness & accuracy

*“Be thorough, be open-minded, **use the same amount of time and diligence that you would like reviewers of your papers to use.**”*

Anonymous survey respondent

Let's try to avoid this from happening

[When receiving my reviews, I feel]

like my research doesn't matter. Specifically, in the recent past the reviews have been non-constructive with statements like (paraphrased) "why would anyone care about this". I always feel like I don't belong or understand this research area after reading reviews.