

Ethical Issues of Questionnaire-based Methods in Software Engineering Research

Ethics Approval

This study has been approved by the Research Ethics Committee of Beihang University.

Purpose of the Study

Thank you for participating in our research on ethical issues and developers' attitudes toward questionnaire-based methods in software engineering (SE) research. This study explores current survey methodology practices and ethical considerations, with the aim of:

- 1) Understanding the landscape of ethical review practices in survey design, distribution, and collection;
- 2) Evaluating the ethical acceptability of participant recruitment methods;
- 3) Proposing improvements for survey methodology in SE research.

Participant Selection

You have been chosen to participate in this survey due to your prior experience with questionnaire-based methods in SE research.

Time of Filling Out

The survey will take approximately 10-15 minutes to complete. While there is no monetary compensation, your insights will significantly contribute to advancing ethical standards in our field.

Your Data Security

- 1) Strict anonymity: Do not collect identity information such as name, company, etc.
- 2) Summary analysis: The results only present group statistics (such as percentages).
- 3) Encryption storage: Data is only accessible for secure access by the research team.

Instructions for Filling Out

- 1) Please answer based on experience. If there is an incomplete match, choose the closest option or skip.
- 2) You can skip questions or exit the questionnaire at any time without any consequences.

Sincerely thank you for your contribution to building a more responsible and respected software engineering research institute!

Part 1: Ethical Issues in Research Design

This part is about ethical issues in your research design, including ethical review of the overall research, questionnaire design, data processing methods and so on.

1. Which ethical issues did you consider during research design?

[Checkboxes]

- ☐ Participant privacy risks
- ☐ Inadequate informed consent processes
- ☐ Data security vulnerabilities in storage/processing
- ☐ Lack of transparency about research objectives
- ☐ None
- ☐ Others _____ *

2. How did you address the ethical issues you mentioned above?

[Checkboxes]

- ☐ Avoiding collection of personally identifiable information
- ☐ Applying data anonymization or de-identification techniques
- ☐ Including a pre-questionnaire statement clarifying research purpose, duration, and confidentiality
- ☐ Requiring electronic informed consent signatures from participants
- ☐ Avoid obtaining email addresses from non-public sources (e.g., obtaining developer email addresses from commit messages)
- ☐ Enabling question-skipping or refusal options for participants
- ☐ None
- ☐ Others _____ *

3. Did you seek Institutional Review Board (IRB) approval when using the questionnaire-based method?[Multiple Choice]

- ☐ Yes ([Please jump to question 4](#))
- ☐ No (no ethics review committee in your institution) ([Please jump to question 8](#))
- ☐ No (approval not required) ([Please jump to question 8](#))

4. How difficult was the IRB review application process?[Multiple Choice]

<input type="radio"/> Very easy 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Very difficult
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5. How long did the ethical review process take?[Multiple Choice]

- ☐ Less than 1 week
- ☐ 1-2 weeks
- ☐ 3-4 weeks
- ☐ 1-2 months
- ☐ more than 2 months

6. How complex were the submission materials required by the ethics committee?

[Multiple Choice]

Very simple <input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Very complex
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7. What other challenges did you encounter during ethical review? [Textbox]

8. Did you include a pre-questionnaire statement or similar explanatory text in the recruitment email?[Multiple Choice]

☐ Yes

☐ No ([Please jump to question 10](#))

9. What components did your pre-questionnaire statement include? [Checkboxes]

☐ Research propose

☐ Reasons for participants selection

☐ Estimated time to complete the questionnaire

☐ Potential benefits and risks for participants

☐ Data processing methods

☐ Others _____ *

Part 2: Ethical Issues in Participant Recruitment

This part is about the participants recruitment methods used in your researches and the ethical issues they may raise. There are also questions regarding your ethical attitude towards certain participants recruitment methods.

10. How did you recruit participants for your questionnaire-based research? [Checkboxes]

- ☐ Social connections (Contact via personal or institutional networks)
☐ Social media (e.g., LinkedIn, Facebook, Twitter/X, etc.) _____
☐ Crowdsourcing platforms (e.g., MTurk, Prolific, etc.) _____
☐ Tech forums (e.g., Stack Overflow) _____
☐ Email outreach (Obtain emails through various methods and distribute questionnaires via email) _____
☐ Others _____ *

11. What ethical concerns do you perceive with the recruitment methods? [Checkboxes]

- ☐ Sampling bias (e.g., limited to a specific demographics)
- ☐ Coercion or undue influence
- ☐ Use of contact information without explicit permission (e.g., purchased data or unsanctioned harvesting)
- ☐ Intrusive recruitment practices (e.g., unsolicited spam emails, repetitive outreach, or disruptive approaches)
- ☐ None
- ☐ Others *

12. To what extent do you perceive the following participant recruitment methods as ethically risky? (Social Connections) [Matrix Rating]

[illegible]

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand
group chats (e.g., WeChat, WhatsApp, etc.)						

13. To what extent do you perceive the following participant recruitment methods as ethically risky? (Tech Forums) [Matrix Rating]

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand
Professional or technical discussion forums (e.g., developer communities, Stack Overflow)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic networking platforms (e.g., ResearchGate)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GitHub issues or open-source communities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. To what extent do you perceive the following participant recruitment methods as ethically risky? (Social Media) [Matrix Rating]

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand
Public social media platforms (e.g., Facebook, LinkedIn, Twitter/X, Medium, Instagram, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Semi-public or niche communication platforms (e.g., Discord servers, Slack groups, Yahoo groups, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Attention Check) Please choose "I don't know/I don't understand"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. To what extent do you perceive the following participant recruitment methods as ethically risky? (Crowdsourcing Platforms) [Matrix Rating]

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand
Paid crowdsourcing platforms (e.g., Amazon MTurk, Prolific, Freelancer, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Credit-based or reciprocal participation platforms (e.g., SurveyCircle, SurveySwap, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. To what extent do you perceive the following participant recruitment methods as ethically risky? (Email Recruitment) [Matrix Rating]

	Very low	Low	Moderate	High	Very high	I don't know/I don't understand
Institutional email lists or mailing groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emails extracted from GitHub commit history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emails from GitHub profiles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email addresses from public sources (e.g., academic publications) to recruit participants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. For methods you rated 4 or 5 (high risk), please explain your reasoning (Example dimensions: privacy violations, power dynamics, informed consent issues, etc.) [Textbox]

17. For methods you rated 4 or 5 (high risk), do you see potential solutions? (Example: enhanced informed consent processes, restricted data usage, etc.) [Textbox]

Part 3: Survey Reception

Now we would like to ask about your experiences as a survey recipient.

18. Have you ever received a survey questionnaire from other researchers? [Multiple Choice]

☐ Yes

☐ No

19. How concerned are you about privacy leakage when participating in surveys? [Multiple Choice]

No concern <input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Extremely concerned
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20. Which measures would reduce your concerns about privacy leakage? [Checkboxes]

☐ Data anonymization or de-identification

☐ No collection of personally identifiable information

☐ Clear statement that data is used only for research

☐ Option to answer anonymously or skip sensitive questions

☐ I don't worry about privacy in academic surveys

☐ Others _____ *

21. To what extent do you feel reassured when you are informed that a study has passed formal ethics review (e.g., approval by an IRB or university ethics committee)? [Multiple Choice]

Not at all <input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Extremely
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22. How important is it to receive a clear explanation of the study's purpose before participating in a survey? [Multiple Choice]

Not important <input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Extremely important
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23. Please indicate how important you believe each of the following elements of informed consent is? [Matrix Rating]

	Not important	Important	Moderate	Highly important	Extremely important
Clear explanation of the research purpose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explanation of why you were selected as a participant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not important	Important	Moderate	Highly important	Extremely important
Estimated time required for participation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Details about data usage and storage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right to withdraw at any time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transparency about receiving future research-related emails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. What other elements of informed consent do you think are important?

(Please specify any missing components not listed in Question 6)

[Textbox]

25. To what extent do you feel annoyed or concerned when receiving unsolicited survey invitations by email? [Multiple Choice]

Not at all <input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5 Extremely
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26. Which of the following practices would make you more comfortable with unsolicited academic survey invitations? [Checkboxes]

- ☐ Clear purpose and sender identity
- ☐ Emails are sent through institutional addresses
- ☐ Transparency about how your email was obtained
- ☐ Option to opt out from further contact
- ☐ Others _____ *

27. As the recipient, do you have any other concerns about questionnaire received?

[Textbox]

Demographic Information

28. What is your age?

[Multiple Choice]

- ☐ Under 18
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55 or older

29. What is your gender?[Multiple Choice]

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ Prefer not to say

30. What is your current academic or professional position?

[Multiple Choice]

- ☐ Undergraduate Student
- ☐ Master's Student
- ☐ PhD Student
- ☐ Postdoctoral Researcher
- ☐ Assistant Professor / Lecturer
- ☐ Associate Professor
- ☐ Full Professor
- ☐ Industry Researcher
- ☐ Others _____ *

31. How many years of research experience do you have?[Multiple Choice]

- ☐ Less than 3 years
- ☐ 3 - 5 years
- ☐ 6 - 10 years
- ☐ More than 10 years

Final Feedback

32. Would you be willing to accept our follow-up interview? If so, please specify your email address.

[Textbox]

33. Do you have any comments on the survey? [Textbox]

34. Would you like to receive the results of this study? If so, please specify your email address.

[Textbox]
