Like a Researcher Stating Broader Impact
For the Very First Time

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Abstract

In requiring that a statement of broader impact accompany all submissions for this year’s conference, the NeurIPS program chairs made ethics part of the stake in groundbreaking AI research. While there is precedent from other fields and increasing awareness within the NeurIPS community, this paper seeks to answer the question of how individual researchers reacted to the new requirement, including not just their views, but also their experience in drafting and their reflections after paper acceptances. We present survey results and considerations to inform the next iteration of the broader impact requirement should it remain a requirement for future NeurIPS conferences.

1 Introduction

There are increasing examples of unethical uses of technology [15, 21]. To curb this trend, some proposals attempt to limit investment or procurement without impact assessment [13] or call for outright bans [12, 24]. Others aim to instill ethical practices at the research stage, before technology transfers into products [14, 15]. Conferences that are “traditionally” technical have started to host workshops on social impact issues [2, 3, 4, 8, 16], and in some cases, announced more interdisciplinary subject areas [7].

Perhaps the most significant change is the NeurIPS submission requirement for a statement of broader impact [23]. Unlike workshops and interdisciplinary tracks that might have been considered more “niche”, the requirement directly affects every submission, of which there are over 9000 this year [19]. While broader impact statements in themselves are not new to the research community at-large [11, 25, 26], they are new to the NeurIPS community. This paper seeks to answer the question of how individual researchers reacted to the new requirement, including not just their views, but also their experience and process in drafting and their reflections on the requirement after paper acceptances.

This research started as an internal discussion at our organization, and subsequently folded into a public conversation as interest grew on the topic. To collect researcher perspectives within and beyond our organization, we created an online public survey [5]. The results inform considerations for designing the next iteration of the broader impact requirement, should it remain in place for future NeurIPS conferences. While we recognize that researchers are not the only intended audience for broader impact statements and that they might not be the only ones with roles and responsibilities in ethical research and technology development, researchers represent a critical mass to mobilize in this effort. Understanding researchers’ experience and process is essential not just to the design of the NeurIPS requirement, but also to advancing towards the goal of ethical research practices in general, given that NeurIPS is a top-tier conference with influence effects beyond its annual meeting.
2 Survey Method

The method used was an exploratory mixed-methods survey with open and closed-ended questions, split in two main sections: section 1 for researchers who had submitted to NeurIPS and section 2 for those who had not. The survey was anonymous and no demographic information was collected. The survey was distributed online within research community channels (e.g., Slack, email lists) and via social media. The goals were to: 1) understand how researchers investigated the implications of their research and subsequently, how they defined their impact statement, as well as 2) understand their views on this new submission requirement. Survey questions focused first on the approach taken for writing the statement and on challenges encountered, then on the perceptions of influence their statement had on the overall submission, and finally, on how they felt about this newly added requirement.

3 Survey Results

A total of 50 participants responded to the survey, most of whom identified themselves as academics (72%), and industry researchers (23.5%). There was a balanced breakdown by career stage, with the largest group of respondents identifying as graduate students (33%). For the group who submitted to NeurIPS (74% of respondents), the majority identified their subject areas as deep learning and theory, respectively. However, among researchers who did not submit to NeurIPS (26%), the primary subject areas were deep learning and social aspects of machine learning. We did not compare our survey population to the NeurIPS population, though that may be an interesting area for future study. Our questions focused first on the process and challenges in completing the submission requirement, then on the perceived impact of the requirement on paper acceptances, and finally on researchers’ views on the requirement and its framing.

3.1 Process and challenges

When asked about how they approached the completion of their broader impact statements, 83.8% of respondents indicated that they completed this part within the co-authors group, without external help. The rest of participants adopted different approaches to completing it, for example accepting support or reaching out for help. A vast majority spent less than 2 hours on this part of their submission, but almost half of them mentioned it was not challenging or not challenging at all to prepare it. When asked about what could make this difficult, there appeared to be different trends. Some viewed their theoretical work as so far from potential practical applications that they found the exercise speculative. Others perceived the requirement as a “bureaucratic constraint” and did not take it seriously. Perhaps not surprisingly, researchers at different stages of their career found the exercise more or less challenging, although their professional domain (academia or industry) does not appear to be a factor in their experienced difficulty with the exercise (Figure 1).

3.2 Impact on submission

Although it was made clear that submissions would not be rejected solely on the basis of the broader impact statement [6], the survey explored researchers’ perspectives on this point. For researchers who submitted, more than 75% said they believed the statements were not taken into consideration at all, yet almost 90% thought that it was unclear exactly how reviewers would assess if the statements were adequately addressing the impacts. Surprisingly, even if the evaluation process was unclear, when asked how confident they were that their statement was adequately responding to the requirement, 43.2% said they were either confident or very confident. Based on our results, time spent did not seem to have an impact, since most of the respondents who spent less than an hour on preparing their broader impact statement also received acceptances of their submissions. Those who sought external help appear to have a lower ratio of rejections (see Figure 2), but we recognize that our sample size may be too small to draw conclusive results.
Figure 1: Level of perceived challenge in preparing the broader impact statement

Figure 2: Impact of time spent and help received in preparing statements

Figure 3: Respondents’ views on framing the requirement as a statement of broader impact
3.3 Framing

The survey explored researchers’ views on the requirement and its framing. Our results indicated that the community is divided on how to frame the requirement: 56% did not agree that broader impact was the right way to frame the requirement, while 44% did (Figure 3). This split was similar when compared to subject area (i.e., those who declared “theory” as one of their subject areas were equally split), submitters/non-submitters, and academia/industry. Postdoctoral/early-career and mid-career respondents were more supportive of the requirement framing than students and senior researchers. There seems to be a general feeling that assessing broader impact is important, but some uncertainty regarding who should do it and how. Some respondents described the requirement as “too broad” or said they did not feel “qualified to address the broader impact of [their] work.” Among those who supported the requirement, some found the thought process most valuable, and that it “forces researchers to reflect on the impact of their research.”

4 Integrating feedback into next iteration of broader impact

The survey results serve not only to examine researchers’ perspectives and formulation process but also to inform the next iteration of the broader impact requirement should it remain in place for future NeurIPS conferences. When asked what could have helped them most in the process of preparing their statement of broader impact, 92% of respondents indicated that examples of broader impact statements would be most helpful. While a few examples were provided this year [6], there will of course be an increasing number of examples to draw from in future years. Guidelines were the second most popular request, including both guidelines on when a statement might be applicable or not as well as how to formulate a statement. NeurIPS did not provide specific guidelines (apart from referencing [16]), however a group of researchers published a guide [10] that may serve for future guideline development. This section proposes, based on the survey results and observations, how to integrate respondent feedback into future iterations of broader impact: rethinking the requirement design and framing; developing greater capacity and confidence among researchers; and reflecting the shared responsibility of ethical research and technology development in society.

4.1 Requirement design

If the goal of the broader impact requirement is to develop ethical research practices, there may be other ways by which to achieve this goal. We recognize that there is precedent for written statements in grant writing [22] and that given the paper-based nature of submissions, a written statement may seem like the most logical implementation of such a requirement. However, our respondents indicated a combination of nonchalance in their approach to the requirement (“This is just another exercise in ‘doing something’. I expect these statements to become pro forma with time, since it will be possible to look at previous years’ papers for ‘inspiration’.”; “I wasn’t particularly rigorous about it.”), outright farce (“If I liked writing fiction I would be writing novels.”), or perceived it as a burden (“one more burden that falls on the shoulders of already overworked researchers”). It is possible that these attitudes may have a counterproductive effect on an ethical research goal [14]. We invite program chairs to consider mechanisms to limit that effect (e.g., an incentive for “best” broader impact statements [4]). Such mechanisms are important not only to manage negative effects, but also to encourage researchers who found the exercise valuable.

4.2 Capacity-building

Given that many survey respondents felt they were not qualified to address the broader impact of their work, workshops [20, 25] may help build capacity over time, especially where workshops might provide a space for researchers to examine their work with a more diverse group of researchers (in terms of experience, demographics, discipline, etc.). Discussions of this type not only help develop capacity and confidence, but also may surface areas of impact that were overlooked by authors. Interdisciplinary collaborations could also introduce new guidelines or methodologies such as the theory of change [28] or consequence scanning [27].

1The survey did not undergo assessment by an Institutional Review Board (IRB).
4.3 Shared responsibility

Recognizing how different systems and social worlds are interacting would increase the quality of the discussion on broader impact, and, perhaps more importantly, develop a sense of shared responsibility within the ecosystem for ethical research and technology development [17]. Researchers represent a critical mass, but others, such as conference organizers, institutions, funders, and users also have roles and responsibilities [1, 9, 18, 25]. Perhaps as a way to address concerns around burden and requisite expertise, the assessment of broader impact could be more of a multistakeholder exercise.

5 Conclusion

This paper and its underlying survey investigated how researchers approached the broader impact statement and surface considerations to better design the requirement in future years. While the survey represented a small sample of the NeurIPS community, its results demonstrate nonetheless a split regarding how the requirement is framed, and how important it seems to be for researchers. Initiating a conversation about broader impact is in itself already a step towards establishing norms and best practices for ethical research. We encourage further work to monitor the evolution of researchers’ perspectives not only at top-tier conferences such as NeurIPS, but also at-large.

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Supplementary Material

The survey questions[here] and the responses received[here] are available for further investigation and use. The survey remains open to responses. At the time of drafting, we had 50 responses on which we conducted the analysis for this paper.

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