Improving Survey Instruments: Using Online Probing to Cognitively Test Gender Questions in Surveys

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IMPROVING SURVEY INSTRUMENTS: USING ONLINE PROBING TO COGNITIVELY TEST GENDER QUESTIONS IN SURVEYS

Abstract

This paper seeks to cognitively test variations of gender questions to be used to questionnaires and surveys with the aim of improving validity and reliability when measuring gender. Gender identity in the United States continues to evolve as social norms shift and discussions become more nuanced. Many national population surveys do not fully capture these identities which has potential social and health consequences for gender minorities. By using a recently developed approach of online probing, this paper attempts to better understand how question designs can impact measurement error using feedback from respondents. A web survey was distributed to American respondents asking them about their experience answering four different versions of questions intended to measure sex and/or gender. Responses were analyzed with special attention paid to the gender identities of respondents. Results offer interesting insights into how future questions can be designed to more accurately and reliably measure gender in surveys.

Keywords: online probing, cognitive testing, survey design, gender identity, sex

INTRODUCTION

Designing good questions is critical in designing a good survey. Researchers aim to construct survey questions that are easily understood and accurately answered by respondents. As a result, numerous methods have been used to "pretest" survey questions in early stages of survey and question design. These methods include, for example, cognitive interviews, behavior coding, response latency, and experiments, among others (Presser et al., 2004). The goal of these pretesting methods is to reduce potential problems faced by respondents (and interviewers) by improving questions and ensuring that they "work" the way they are intended by the researcher (Fowler, 2014, p. 102).

A new pretesting method has evolved in part due to the rise of web surveys: online probing. Online probing offers a "supplemental" technique to face-to-face cognitive interviews (Behr et al., 2012a). Cognitive interviews are conducted to find out the following: whether the questions were understood correctly, whether the respondents had the information they needed to answer the question, whether the answers accurately described what the respondents had to say, and whether the answers provide valid measures of what the question was designed to measure (Fowler, 2014, p. 103). Online probing intends to answer these same questions albeit through self-administered online web surveys rather than laboratory interviews (Behr et al., 2012a).

Implementing pretesting methods is critical for ensuring accurate and reliable survey responses. However, one question that is often asked in questionnaires yet lacking in thorough tests is the question of a respondent's gender. According to a Harris Poll conducted in 2017 to examine Americans' acceptance of LGBTQ individuals, 12 percent of young people in the United States between ages 18 and 34 expressed a gender identity different from "male" or "female" (GLAAD, 2017). This information is often not captured by most gender question

designs which puts these questions at risk of being both invalid and unreliable – the definition of a "bad" question (Fowler, 2014, p. 75).

As cultural norms and values in the United States continue to shift away from strictly binary gender identities of "male" and "female", question designs may need to adapt and reflect this shift in order to remain a "good" question that measures what researchers intend to measure with as little discomfort experienced by respondents as possible.

Using the qualitative pretesting method of online probing, this paper seeks to test variations of the "gender question" by asking open-ended questions to respondents about their experiences answering each question variant. Results from this online probe may help shed light on how best to design questions about one's gender in the U.S. context of shifting societal norms.

LITERATURE REVIEW

Cognitive Interviews and Online Probing

Groves et al. (2009) illustrate the cognitive process that takes place by individuals when answering survey questions. Respondents must first comprehend the question which requires interpreting the question and identifying what information is being requested (Groves et al., 2009). Next, respondents must retrieve this information. Respondents then will make a judgement and estimation on how to answer and then report their answer onto the survey, if possible (Groves et al., 2009). Groves et al. (2009) make the important point that, "how respondents choose to report their answers will depend in part on the fit between the information they retrieve (or estimate) and the constraints imposed by the questions" (p. 223). Pretesting survey questions through cognitive interviews helps researchers to better understand how this cognitive process unfolds for respondents answering particular survey questions.

Cognitive laboratory interviews are conducted face-to-face between respondent and interviewer. The interviewer may either ask the respondent to "think aloud" as they answer the questions or, alternatively, ask a series of follow-up questions about what the respondent thought the question was asking and how they chose their answer, also known as "probing" (Fowler, 2014, p. 103; Groves et al., 2009). These interviews attempt to capture respondents' cognitive processes and may result in modification of survey questions in order to reduce measurement error, or "discrepancies between the true answer to a question and the answer that finds its way into the final database" (Groves et al., 2009).

Cognitive interviewing is a useful pretesting method; however, Behr et al. (2012a) identify some of its challenges and offer a supplemental approach. Due to the cost and labor of conducting interviews, the sample sizes are quite limited (Behr et al., 2012a). Interviews also introduce the risk of interviewer effects (Fowler, 2014).

Web surveys, Behr et al. (2012a) argues, are cost- and time-efficient and conducive for larger sample sizes. Utilizing web surveys offers an alternative method to cognitive interviewing while still maintaining the same goals. Behr et al. (2012b) highlight benefits unique to a web survey approach including standardized probing and more reflective answers of respondents by forgoing an interviewer.

Behr et al. (2012b) test the online probing pretesting technique and find that panel respondents overall provided "productive answers" (p. 494). They warn, however, that online probing should not substitute cognitive interviews but supplement them in cases where the situations would call for it (such as hard-to-reach population groups). Similarly, Meitinger & Behr (2016) find different strengths of cognitive interviews and online probing and suggest both be used complementarily. While cognitive interviews may produce longer answers and reduce nonresponse via interaction between interviewer and respondent, online probing offers larger

sample sizes and more variation in the population which helps compensate for its weaknesses (Behr et al., 2012b; Meitinger & Behr, 2016). If cognitive labs or interviewers are not available, online probing can be a useful tool for assessing cognitive processes of respondents and, thus, whether the survey questions being cognitively tested are valid or reliable (Meitinger & Behr, 2016).

Gender Survey Questions

Survey methodologists have yet to test questions regarding respondents' gender. Literature on this particular topic is extremely limited and survey method experts so far have not addressed this issue.

Gender Identity in U.S. Surveillance (GenIUSS), a group initiated by the Williams Institute at the UCLA School of Law, published a report in 2014 with suggestions on how to identify transgender and gender minorities in surveys. They argue, "if transgender and other gender minority people could be identified in key federal surveys, the resulting data could provide transgender and other gender minority people with a critical tool to guide local and national discussions about policy, resource allocations, and other issues that affect them" (The GenIUSS Group, 2014). In other words, data impacts policy. Ignoring gender minorities in national population surveys may lead to ignoring their social, economic, and health concerns. Better data collection will result in more informed policy discussions.

While groups such as GenIUSS offer recommendations on how to design questions intended to capture respondents' gender, more research and testing is required. Given the cultural shifts and contemporary discussions taking place in the United States, it behooves survey methodologists to reexamine conventional designs of this question and conduct pretests in order

to reduce measurement errors. In this effort, the following analysis intends to learn more about respondents' experiences answering gender questions via online probing.

METHOD

Online probing as a qualitative method is used for this analysis for a number of reasons. First, as Behr et al. (2012b) argues, it is affordable and requires less time and labor. Geographic restrictions involved with studying a wide selection of American respondents also favored online probing over laboratory cognitive interviews. Additionally, this analysis aimed to include a hard-to-reach population group. For these reasons, online probing was used as a supplemental approach to cognitive interviewing as a method to pretest gender questions and obtain respondents' cognitive feedback.

A web survey was distributed to American respondents via the author's social media network. The survey included an introductory text, four question variants, and some demographic data to identify purposive sample groups. These sample groups seek variation in gender identity, age, education, and social politics.

Younger individuals are more likely to identify other than strictly male or female which may influence their experience answering gender questions (GLAAD, 2017). Alternatively, older individuals may experience confusion by unconventional question designs. Higher levels of education may have the effect of exposing individuals to more diversity in both thought and people (e.g. courses in gender studies or meeting transgender or gender non-binary classmates). This exposure through a university education may also affect how respondents answer gender questions. Gender has also become a politicized subject in the United States. Legislation regarding bathroom access to transgender individuals has ignited discussion and debate amongst politicians and citizens alike. Social conservatives hold more traditional ideas about gender while

social liberals are less likely to do so. A respondent's social politics may influence their reaction to different variations of gender questions.

In the effort to obtain responses from a wide variety of individuals within these sample groups, an ideal breakdown of respondents is detailed in Table 1. The ideal breakdown is unlikely to be reflective of the resulting data due to the social network makeup of the author. However, if this pretest were to be conducted again, additional efforts should be made to retrieve a more ideal sample variation.

Table 1. Ideal breakdown of purposive sample

Sample Group	Ideal Breakdown
Gender Identity	50% cisgender[1], 50% transgender and/or gender non-binary[2]
Age	50% under 35 (younger), 50% age 35 and over (older)
Education	50% with at least a bachelor's degree or more, 50% with less education than a bachelor's degree
Social Politics	40% socially conservative, 40% socially liberal, 20% other/mixed

Four questions that intend to measure respondents' sex or gender were included in the online probing questionnaire. The first question variant (variant A, Figure 1) is a design included on many national population surveys such as the United States Census and the Americana Community Survey. It asks for the respondent's sex and offers only "male" and "female" as closed options. The second question variant (variant B, Figure 2) is a design observed to be used in some online surveys and forms. Rather than asking about sex, it asks for the respondent's

[1] "Cisgender" refers to those whose gender identity aligns with the biological sex they were assigned at birth

[2] "Non-binary" refers to those whose gender identity is neither strictly male or female

gender and includes “male”, “female”, and “other”. The “other” category could catch those respondents who identify neither as male or female. The third and fourth question variants (variant C and D, Figures 3 and 4) are designs recommended by the GenIUSS report which implement the suggested “two-step” approach, asking for both assigned sex *and* gender identity (The GenIUSS Group 2014). Variant C allows respondents to only select one of four options while variant D allows respondents to select any number of five options with the additional option to type in a different gender identity not previously listed.

Only one question variant was displayed on the computer screen at any given time. Just beneath the question variant for each variant, the probe, “please describe your experience answering this question (e.g. difficulty, comfort, clarity),” was asked. The introductory text of the survey explained the purpose of the survey and the kind of information and feedback sought after.

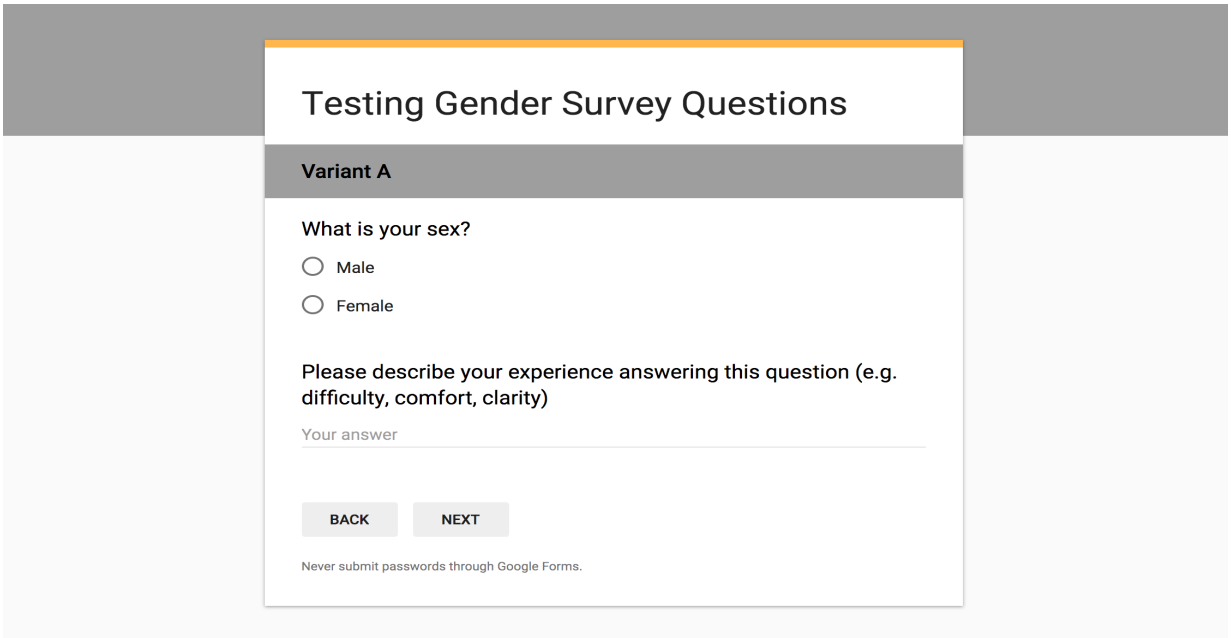

Figure 1. Question variant A (closed binary sex question)

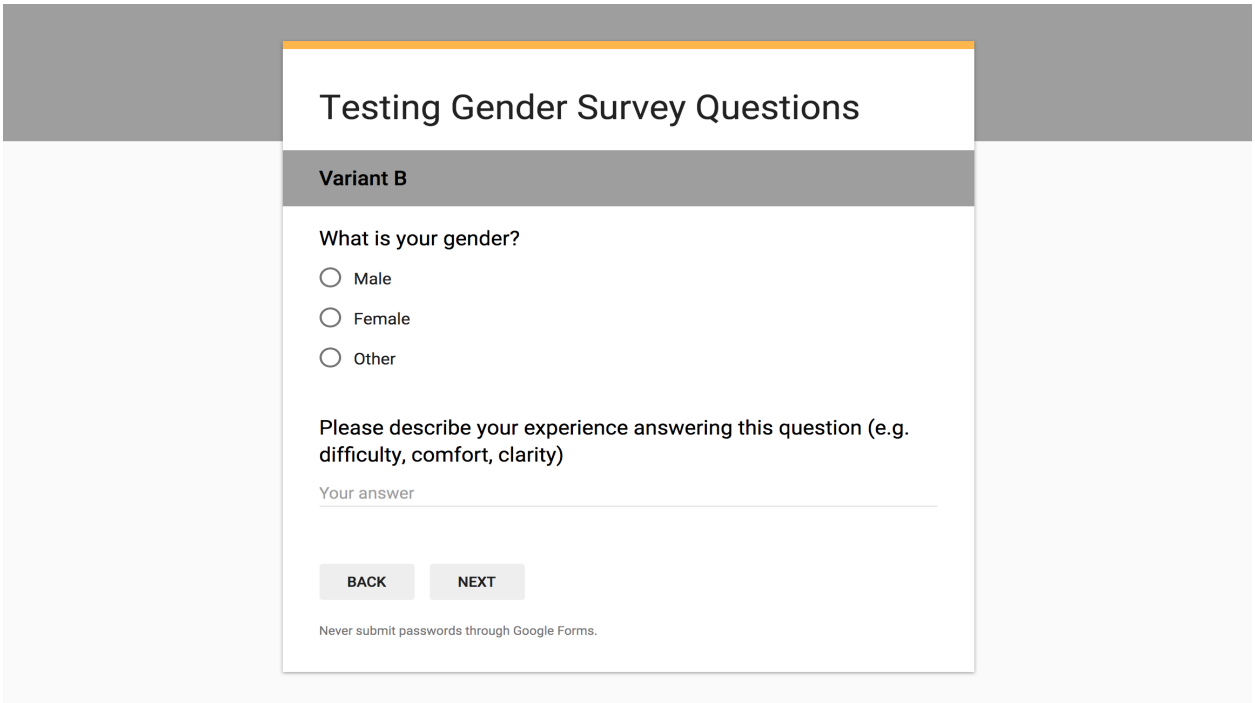

Figure 2. Question variant B (closed gender question with "other" option)

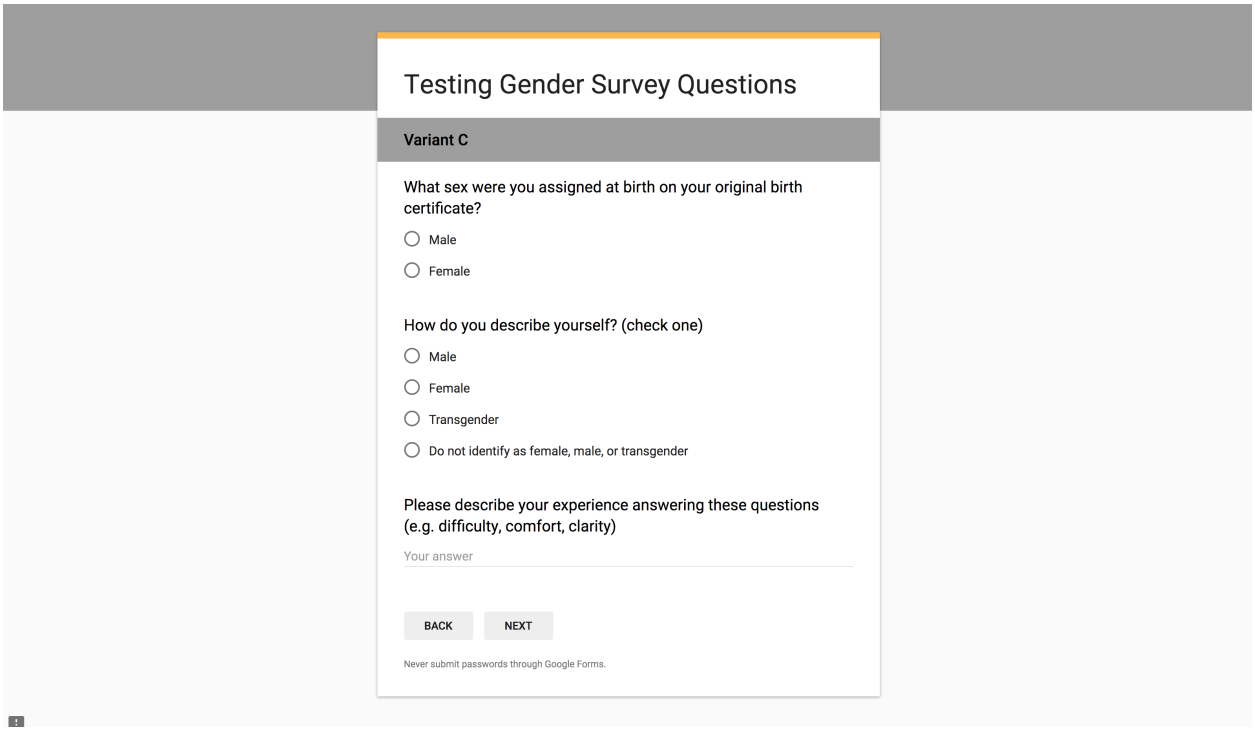

Figure 3. Question variant C, two-step (closed birth assignment and gender identity)

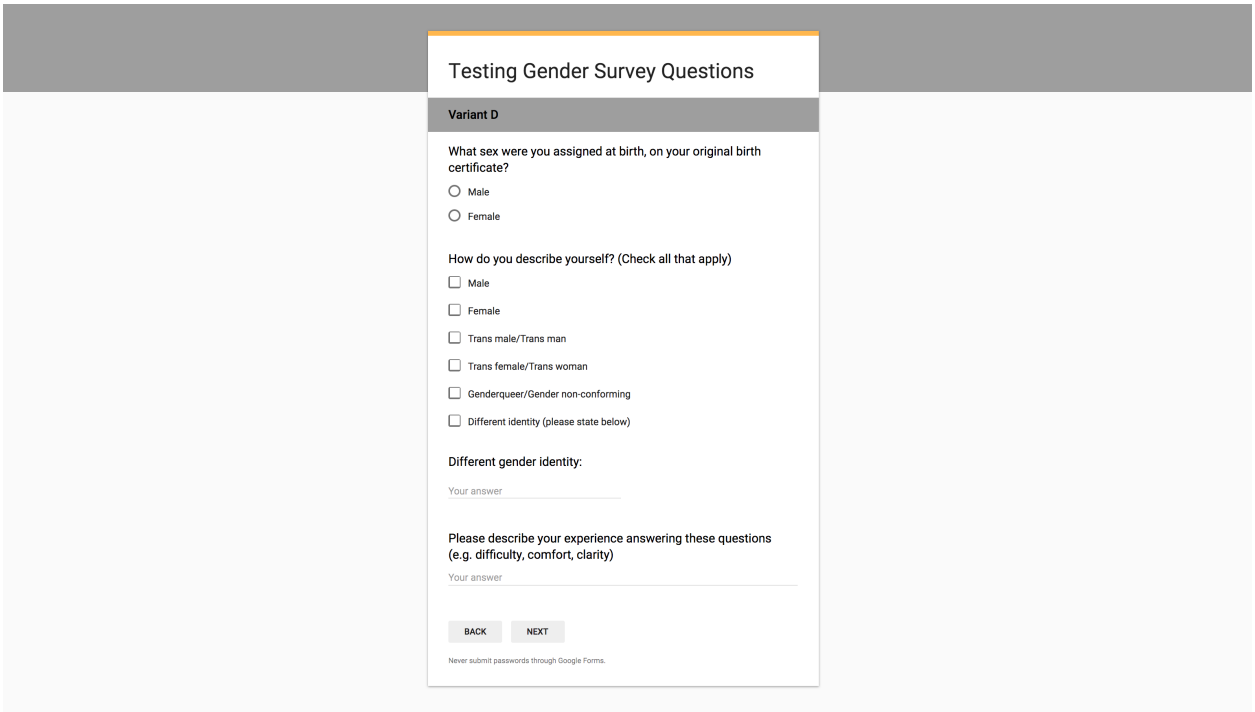

Figure 4. Question variant D, two-step (closed birth assignment and open gender identity)

After all four question variants and their respective probes were asked, a final open-ended textbox was made available for respondents to provide additional feedback. The questions to identify purposive sample groups were asked at the very end.

RESULTS

The survey received a total of 95 responses. Sixteen of these responses appeared to be duplicate responses made by the same respondent and 10 respondents did not provide answers to any of the probes, leaving 70 unique respondents with complete data to analyze.

Respondents' gender identity and education reflected the ideal breakdown of the sample more than respondents' age and education. Using responses from question variant D, around 39% of respondents identified their gender being something other than strictly male or female. This is a decent size considering gender minorities tend to be harder to reach. Those with and

without at least a bachelor's degree were distributed about half and half. However, respondents' age skewed drastically younger (under the age of 35). This is likely due to the age and social network of the author as well as the medium used to retrieve the data (online via Facebook). The social politics of respondents also skewed towards being socially liberal. Some identified themselves as both socially liberal and conservative while others did not identity as either.

Table 2. Actual breakdown of purposive sample

Sample Group	Actual Breakdown
Gender Identity	61.4% cisgender, 38.6% transgender or gender non-binary
Age	82.4% under 35 (younger), 17.6% 35 and over (older)
Education	55.7% with at least a bachelor's degree or more, 41.4% with less education than a bachelor's degree (2.9% no answer)
Social Politics	1.4% socially conservative, 78.6% socially liberal, 11.4% mix of both, 5.7% none, 2.9% prefer not to say or unable to answer

Variant A

Amongst those who identify as strictly male or female and those who do not, respondents' reported different experiences when answering question variant A. The closed binary option about one's sex (referring to their biological anatomy) was easy, comfortable, and clear for most cisgender respondents.

P2: Pretty easy, I'm comfortably cis
P10: Easy.
P19: Required no thought whatsoever
P29: This is extremely cut and dry for me. No difficulty whatsoever.
P40: The question is easy to answer and it is clear. I feel comfortable answering the question. It is clear to me what the question is asking and what I need to answer.
P58: No problem, simple, straightforward

While most cisgender respondents were able to answer easily and comfortably, many pointed out issues this question may cause non-cisgender respondents. However, this could have been due to confusion in conflating “sex” and “gender identity” in the question.

P31: I'm ok, as I'm cis but I know it's a bit too binary.
P34: Well, I immediately thought it did not include all genders, but was easily answered for me as I am a cisgender female.
P38: I am a cis female, so personally I'm pretty comfortable with this kind of question. I do note the lack of non-binary options, though.
P48: As a cisgender man, this question feels totally normal and easy to answer. I don't have to think hard about what it's asking, but if I do, I can see that it would clearly cause problems for some people of my acquaintance.
P70: I identify strongly as female, but worry about people who consider them self gender fluid or another non-binary gender

Transgender and gender non-binary respondents reported different experiences regarding the difficulty, comfort, and clarity in answering variant A. Some respondents recognized the question intends to measure “sex” rather than gender identity and answered accordingly. However, this caused discomfort for some respondents.

P17: Hard to answer. Technically sex is female since you are not asking gender which would be male.
P23: Simple to answer - referencing biological sex.
P35: An easy response since I have been female since birth. I identify as agender but understand that my physical body is different from my mind.
P36: I don't identify as female, so it's weird choosing female even if I am biologically. Other than that, no problems.
P60: I find it difficult as I hate being in a female body.

For some non-cisgender respondents, they understood the question as referring to their gender identity rather than their sex. This caused potentially avoidable discomfort and difficulty.

P43: I'm used to seeing only m/f options on almost everything, but it never stops disappointing me because I'm somewhere in the middle and don't feel represented.
P44: Didn't really know which one to choose. Like either one is wrong.
P46: Difficulty. As someone who identifies gender neutral, it's obviously tough to reply strictly "female" or "male".
P55: Discomfort. Feel stuck. I contemplated whether to give answer I would put on official forms. At the same time, the other option did not fit me either.
P65: Assuming it means which genitalia you happen to have?

Additionally, a few respondents noted that, even when referring to biological sex, it would be better to include "intersex" as an option as some portion of the population are born with mixed reproductive organs. Person 63 wrote, "I am not uncomfortable answering this question, but believe it should be expanded to include intersex as an option, as 1.7% of the population is intersex." Similarly, person 68 wrote "Very clear, however lacking an intersex option for those without a clearly defined sex."

Responses did not seem to differ between those with more or less education. Both sample groups (with and without at least a bachelor's degree) expressed more ease if they were cisgender and less ease if they were not cisgender.

Variant B

Respondents who identify as strictly male or female largely found this question easy and clear to answer. Rather than asking about their sex, the question asked about their gender and provided the options of "male", "female", and "other." Some expressed their appreciation for including the "other" option.

> P2: Same for me [pretty easy], I feel better in general knowing non-conforming people have some option
> P15: Again, I have no issues with this, though I appreciate the acknowledgment of gender nonconforming people for their sake and comfort.
> P41: Question is more welcoming to other identities.

Others expressed criticisms of including the "other" option. For instance, person 24 responded, "other should not be an option." However, rather than thinking it should not be included at all, most of the criticism was aimed at the lack of nuance in using "other" as a blanket category for those who do not identify as strictly male or female.

> P38: Still cis, still female. Having a non-binary option is better, but "other" kind of sounds like an afterthought or a bit of a lazy catch-all. Still, it at least

acknowledges that gender is different from sex, and that it can be presented in a non-male or non-female way.

P48: Similar to previous. The "other" option is helpful for people with non-binary genders, but the specific word "other" still has the potential to make some people uncomfortable

P61: Feels like “other” should have a fill-in secondary response. Without it, it seems like a tri-state question with “other” being meaningful without context. If the surveyor cares enough to include non-binaries, lumping them into the dustbin of the nonspecific seems rude.

Overall, cisgender respondents found this question variant easy and straightforward to answer and included some enlightening feedback about the use of “other” – better than not including a third option, but still may be problematic.

Non-binary respondents, however, offered mixed reactions. Some felt quite comfortable selecting “other” while others were unsure and confused how to answer accurately and honestly. Person 43 is “not exactly sure” of their gender identity yet, so the “‘other’ option works great.” Person 60 responded, “glad there was an ‘other’ option.” Person 36 reported no problems, stating that “other = good.”

Contrary to an easy, comfortable experience, some non-binary respondents reported a different experience. Person 44 is also unsure of their gender identity but stated that “any answer feels wrong.” Person 25 felt “confused” while Person 54 felt “a little unsure.” Person 46 reported feeling “odd” selecting the “other” option. More detailed feedback helps unpack the potential issues with this question design.

P53: Difficult to answer because multiple categories are potentially relevant and the other option doesn't allow space to explain my answer. This groups everyone who answers it together even though our experiences are extremely varied.

P63: I would prefer if there was an option to write out what I mean by answering "other", since my gender isn't "other". It has a label. Not using that label feels uncomfortable, as if I am agreeing that I am separate from the "normal" genders in a way that doesn't need to be defined.

Criticism of the “other” option appears to be similar from both cisgender and non-binary respondents: “other” is a large, undefined category that does not seem to accurately measure a

respondent's gender identity. While it may somewhat capture those who are not cisgender, the use of "other" may cause discomfort or confusion for some respondents. For other respondents, however, the "other" option is a good third alternative to strictly "male" and "female" options. Again, responses did not seem to differ between those with more or less education.

Variant C

As the first question design suggested by the GenIUSS report, variant C presents a "two-step" approach. It first asks for the respondents' sex assigned at birth followed by a question about how they describe themselves offering four options. Many cisgender respondents felt this question was easy, clear, and often better than the previous question designs.

> P4: Very clear questions. At birth vs what you currently identify with seems easiest
> P8: I like this one better. Because it encompasses more people its not as limiting as the other 2
> P31: Better, this seems to better reflect people I know.

While this was the majority sentiment, some respondents held reservations. Both Person 38 and 48 commented that asking for a respondent's birth sex could be seen as "intrusive" or "rude" by transgender respondents. Person 61 noted that including this question design would depend on the type of survey. "Over-complex on a survey about what brand of baked beans you prefer, but about right if your survey is about medical or researching gender issues." Apart from this feedback, most cisgender respondents reported few issues with this question design.

Alternatively, non-cisgender respondents offered much more critical feedback. The most common issue appeared to be confusion for non-binary people who were unsure whether to select the "transgender" option or not. The phrasing of the second step of the question also caused reason for criticism, especially in regards to the "transgender" option.

> P35: I was confused by the second question with reference to sex or gender. I took the meaning to be in reference to gender identity. I don't claim transgender (even

though agender is a form of it) because American culture tends to relate it to transwoman or transman and not the non- binary genders.

P53: The second part of the question was difficult, unclear and uncomfortable. It lumped trans people together as a single gender, not allowing the split between trans men and trans women, whilst also implying they're not men or women. The fourth category was especially confusing, since it only allowed for a denial of all three aspects rather than partial Inclusion in one or more

P55: As a non-binary person, I felt unsure whether to put transgender of not. I feel like I didn't know how the person/people posing the question would interpret the term "transgender," and I wanted to convey an honest as possible response.

P63: I personally do not identify as transgender, because transgener is still tied to a binary (trans men, trans women) and I identify as a non-binary gender. However, some people do identify as both non-binary and transgender, where transgender is the umbrella term and non-binary is the specific term. It's just a personal preference, either way.

Some also noted the issue with asking for birth sex and the potential discomfort experienced by transgender respondents. However, among those who identified themselves as transgender in this question, none expressed actual discomfort answering this question. A larger sample of transgender respondents would help assess the level of discomfort caused by asking for birth sex.

Variant D

This question design incorporated a similar “two-step” approach and included more gender identity options and allowed respondents to select multiple options. While reservations remained about the necessity of the birth sex question, both cisgender and non-cisgender respondents provided mostly positive feedback. Many reported that answering this question was easy, clear, and comfortable. Some included comments that this was the best question variant out of the four included in the questionnaire.

P18: I think this way to ask the questions are much better. Still the bit about the assignment at birth may cause some distress, but for me, I like being able to give more than a binary answer. (Female, Genderqueer/Gender non-conforming)

P23: Having multiple options allowed to be checked rather than a “one only” response makes it feel a lot easier to be specific. (Genderqueer/Gender non-conforming)

P46: This one was by far the best so far. The ability to click multiple boxes, THAT's what I was looking for. I move between gender neutral and genderfluid, and so, this was perfect! (Male, Female, Genderqueer/Gender non-conforming)

P54: The birth certificate question was easy but again made me wonder why it was needed and what to do if neither option is accurate. The option to specify multiple options and write out my own answer was very comforting because it meant not having to pick and choose the most relevant aspects. This also made choosing my answers easy. (Female, Genderqueer/Gender non-conforming, Different identity: non-binary demigirl)

Though this question seemed to elicit fewer critiques, especially from non-binary respondents, a small number of cisgender respondents expressed confusion regarding the many options. Person 9 stated that this question was the "worst yet" and commented that gender is a simple question, adding "people need to figure their shit out." Person 24 responded that he was "shocked as to why there are so many options" after previously commenting "there is only male and female."

These sentiments were rare in this particular sample. However, two respondents commented on the difficulty this question design presents for researchers and analysts despite the improved measurement. While this may present researchers with some difficult choices when creating surveys, an overwhelming majority of respondents seemed to prefer this design and felt it was easy, clear, and comfortable to answer.

DISCUSSION AND CONCLUSION

Online probing is a new, supplemental approach to cognitively pretesting survey questions when cognitive interviews are not feasible. Receiving feedback from respondents about what they thought a question was asking and how they arrived at their answer is critical when designing and improving survey questions. A "good" survey question is one that is both valid and reliable, meaning that it measures what the researcher intends to measure and is understood correctly among respondents. Online probing can help detect weaknesses in how a question and its answers are formulated and presented.

Sex and/or gender is often included in surveys for demographic data collection. As social norms around gender continue to shift in the United States, it is important to reexamine how surveys in the U.S. are designing their sex and gender questions in order to ensure measurement error is minimized. So far, survey methodologists have conducted few, if any, tests of this particular question design.

The results of this online probing analysis indicate a number of important findings. First, asking "what is your sex?" confused both cisgender and non-cisgender respondents. Some understood "sex" as one's physical anatomy with others confused it with one's gender identity. This question design, then, may be both invalid and unreliable, which is alarming due to its prevalent use in national population surveys. Additionally, some rightfully pointed out the absence of an "intersex" option.

Second, including an "other" option in gender identity questions is better than having no third alternative, however it still raises concerns. Respondents were divided on how they felt about selecting "other"; some liked it and some felt uncomfortable. Using such a large, undefined category provides little information about the individuals within that category. If gender identity is not very relevant to the research question, including "other" in the survey design may suffice. However, in the case of irrelevancy, it may be worthwhile to exclude the question altogether.

Third, it is probably not necessary to include a question about one's assigned sex at birth unless it is central to the research being conducted. Respondents expressed issue with the first part of this "two-step" approach suggested by the GenIUSS group. Some indicated that it could be seen as invasive or rude. Interestingly, this question is essentially the same question as "what is your sex?" just presented differently. When creating surveys, researchers might want to ask

themselves which data they are interested in collecting: the sexual reproductive organs of their respondents or how their respondents identify and live their lives?

Fourth, including "transgender" as one category is problematic and gives rise to unreliable answers. Non-binary respondents were confused whether to select transgender or not, as some view and define "transgender" differently. Delineating this category into "trans male/man" and "trans female/woman" provides more clarity.

Finally, while a significantly more complex design, allowing respondents to select multiple options and write-in a different gender identity not listed seems to yield greater comfort to non-cisgender respondents and may produce more valid and reliable answers. For example, one respondent provided different answers for each question variant. While national surveys may record Person 47's sex as "female," other surveys might record their gender as "other" or "transgender" when, really, they move between genders and identify with multiple identities. Only a question design that allows more than one selection can capture that kind of complexity.

This analysis highlights how measurement error of respondents' sex and gender identity can be greatly affected by the survey's question design. About 39 percent of respondents in this particular questionnaire did not identify as strictly male or female; however, this information would have been missed entirely using only a binary question design, which is often the case in many national population surveys. Using a qualitative method of online probing, this analysis hopes to provide a useful place to start thinking about different approaches to gender question designs. As the social environment in the United States becomes more complex and nuanced, it is up to survey methodologists to improve their questions by conducting cognitive tests with the aim of developing more valid and reliable measures of gender.

References

Behr, D., Braun, M., Kaczmirek, L., & Bandilla, W. (2012a). Testing the validity of gender ideology items by implementing probing questions in web surveys. *Field Methods*, 25(2), 124–141.

Behr, D., Kaczmirek, L., Bandilla, W., & Braun, M. (2012b). Asking probing questions in web surveys: Which factors have an impact on the quality of responses? *Social Science Computer* Review, 30(4), 487–498.

Fowler, F. J. (2014). *Survey research methods.* London: Sage Publications

The GenIUSS Group. (2014). *Best practices for asking questions to identify transgender and other gender minority respondents on population-based surveys.* Los Angeles, CA: The Williams Institute.

GLAAD (2017). *Accelerating Acceptance 2017* [PDF file]. Retrieved from http://www.glaad.org/files/aa/2017_GLAAD_Accelerating_Acceptance.pdf

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). *Survey methodology.* Hoboken, NJ: John Wiley & Sons, Inc.

Meitinger, K., & Behr, D. (2016). Comparing cognitive interviewing and online probing: Do they find similar results? *Field Methods*, 28(4), 363–380.

Presser, S., Couper, M. P., Lessler, J. T., Martin, E., Martin, J., Rothgeb, J.M., & Singer, E. (2004). Methods for testing and evaluating survey questions. *Public Opinion Quarterly*, 68(1), 109–130.

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