2025. Proc Ling Soc Amer 10(1). 5952. https://doi.org/10.3765/plsa.v10i1.5952.

Learning new neopronouns or task adaptation?

Emilia Pike-Acosta, Juyeon Seo, Vic Wen, Finn Verdonk, & Kirby Conrod[1]

Abstract. English neopronouns have been reported difficult to learn or use because of their low frequency, and because pronouns are a closed category, and are rated below ceiling in acceptability surveys. Hekanaho (2022) reports that metalinguistic commentary about neopronouns includes themes of prescriptivism, unfamiliarity, 'weirdness,' and confusion. In this study, we examine whether exposure to neopronouns during a survey increased acceptability ratings. Neopronouns were rated higher when seen later in the survey. We analyze metalinguistic comments from the survey in which participants report their experiences in the survey as educational or instructive, suggesting that *some* order effects may be reflective of actual learning.

Keywords. neologistic pronouns; task adaptation; acceptability; surveys; metalinguistic commentary

1. Introduction. English neopronouns have been reported difficult to learn or use because of their low frequency, and because pronouns are a closed category (cf Muysken 2008), and are rated below ceiling in acceptability surveys (Hekanaho 2023, Rose et al. 2023). Hekanaho (2022) reports that metalinguistic commentary about neopronouns includes themes of prescriptivism, unfamiliarity, 'weirdness,' and confusion.

In the present study, we examine whether exposure to neopronouns during a survey increased acceptability ratings. Neopronouns were rated higher when seen later in the survey. We analyze metalinguistic comments from the survey in which participants report their experiences in the survey as educational or instructive, suggesting that *some* order effects may be reflective of actual learning.

Participants rated sentence acceptability on a Likert scale of 1 (completely unnatural) to 7 (completely natural). Survey stimuli included canonical (*he, she, they*) or neologistic (*xe, fae, ey, ze*) pronouns with gender-neutral antecedents (proper name/definite NP) and fillers with ungrammatical (island) or grammatical (non-island) wh-movement. The presentation order was randomized. This main task was followed by a demographic survey that asked for age, gender, gender orientation (trans/cisgender), sexual orientation, race, ethnicity, location, place of origin, and personal pronouns. Participants also answered 5 open-ended questions aimed at eliciting metalinguistic commentary about neopronouns.

2. Background. Neopronouns are neologistic pronouns. This is in contrast to the canonical third person pronouns that exist in English (*ex: they, she, he*). In English, pronouns are considered to be a closed class resistant towards the coining of new words (Baron 2020, McConnell-Ginet 2013), (Muysken 2008). This has a significant impact on the perception of innovations like neopronouns. Hekanaho (2022) reported metalinguistic commentary about neopronouns with themes of prescriptivism, unfamiliarity, 'weirdness,' and confusion. These findings indicate that neopronouns stand out and are very noticeable.

This is by no means a phenomenon exclusive to English. Users of many other languages have also been innovating in the pronominal category. In Swedish, the neopronoun *hen* has

[1]Corresponding Author: kconrod1@swarthmore.edu.

gained widespread use in recent years (van Berlekom et. al 2024), (Renström et. al 2021). In Spanish as well, the neopronoun *elle* has also been coined (Spiegelman 2024), (Diaz et. al 2022).

In English, neopronoun users make up a particularly small minority of the population, but it is difficult to estimate exactly how many people use neopronouns. In 2023, the Gender Census surveyed genderqueer people and found that out of 40,375 respondents, 11.6% (n = 4,679) reported using "a pronoun set not listed here" and 31.6% (n = 25,2458) reported using at least one of *xe/xem*, *fae/faer*, *ze/hir*, *ey/em*, and *e/em*. Genderqueer people are estimated at 1% of the population, giving an estimate of about 0.432% of the population using neopronouns. In 2015, the US Transgender Survey found that out of 27,715 respondents, 2% (n = 466) reported asking people to use *ze, hir* to refer to themselves and an additional 4% (n = 1162) reported "pronouns not listed above." Trans people are estimated to make up about 0.5-1.6% of the population, giving an estimate of 0.003-0.096% of the population using neopronouns. More recently, in 2020, the Trevor Project reported that 4% of LGBTQ youth in the US (n = 40,001) used pronouns besides *he*, *she*, and *they*, so neopronoun usage could be on the rise.

Task adaptation occurs when participants adapt to a task in the survey. This causes faster reaction times and higher acceptability ratings over the course of the survey (cf Prasad & Linzen 2021). This is not to be confused with participants actually learning or changing their mental grammars. These are phenomena not specific to the task of the survey and should have lasting effects beyond the end of the survey. These differences make it important to distinguish between task adaptation and learning during experiments. In this study we use metalinguistic commentary from participants in order to distinguish between whether they are learning new forms or simply adapting to the task.

This is an important distinction to make, because previous research has found that it is in fact possible to learn while taking a survey, particularly when participants interpreted survey questions as intended to be didactic. Vaughn (2022) found that asking participants to rate something caused them to pay attention to it. This sometimes occurred in uncomfortable social ways like rating how "smart" someone sounded. Participants felt that the questions were indicative of the researchers' alignments with ideologies and felt uncomfortable and if they were asking to be "biased or discriminatory" (Vaughn 2022). This could indicate that participants might learn new neopronouns from exposure during survey taking, especially if participants thought that the purpose of the survey was to educate or promote neopronouns.

3. Methods. The acceptability survey was performed on PCIbex (Zehr and Schwartz 2018). There were 6 pronouns and 2 antecedent types (proper names and noun phrases); the pronouns included canonical pronouns *he, she,* and (singular) *they*, and neopronouns *xe, fae,* and *thon*.

The survey used a latin square design that combined antecedent (NP or proper name) and pronoun type (*he, she, they, xe, fae, thon*). Each participant saw a total of 20 stimuli and rated them using a continuous slider. Participants were also shown grammatical and ungrammatical fillers. The stimuli and distractors were interspersed and randomly ordered.

Participants were also given demographic questions that asked for their age, gender, gender orientation (trans/cisgender), sexual orientation, race, ethnicity, location, place of origin, and personal pronouns. Participants were allowed to give both free and response and checkbox demographic responses in order to allow them to better represent their identities. Participant recruitment was conducted online via social media and resulted in a total of 370 free response answers. After taking the survey, participants were also asked the following free response questions:

1. “Did anything stand out about these sentences?”
2. “Have you heard of neopronouns? In what context/where did you learn about them?”
3. “Do you think that it's bad grammar to use the pronoun they to refer to only one person?”
4. “How frequently do you use neopronouns (such as xe/xem, fae/faer, ey/em, thon/thon) in your daily life? For yourself or for others?”
5. “Do you think English language would benefit from ways to refer to people outside of male and female genders?”

We also tagged the free response answers for specific themes. We tagged responses for themes of learning/adapting (e.g. TryingToLearn, LearnedInSurvey, WouldLearnIfCommon) and general attitudes towards (for/against) neopronouns. We also tagged responses with where or whom participants learned from (e.g. LearnedFriendFamily, LearnedOnline, DiscoveredInSurvey). Each tag was assigned specific criteria that responses had to meet in order to merit that tag. Then the responses were assigned tags by research assistants according to the tag criteria. The tag assignments were then reviewed by a second research assistant in order to norm the results.

4. Results.

4.1. DEMOGRAPHICS. The survey received 370 responses; we excluded 1 participant from the analysis because they gave an erroneous birth year, and 1 because they did not provide their birth year; the results below are based on the remaining n=368 responses.

The gender breakdown of participants includes 196 women, of whom 165 identified as cisgender, 14 were transgender, and 17 selected ‘neither cis nor trans’; 115 men (85 cis, 18 trans, 12 neither cis nor trans); and 57 participants of other genders (3 cis, 38 trans, 16 neither). Participants who indicated that they did not wish to answer the gender or gender orientation question are excluded from these counts. The gender breakdown of gender categories and gender orientation (cis/trans) is shown in Figure 1 below. The full list of free-response text answers to a free-response gender question is available upon request.

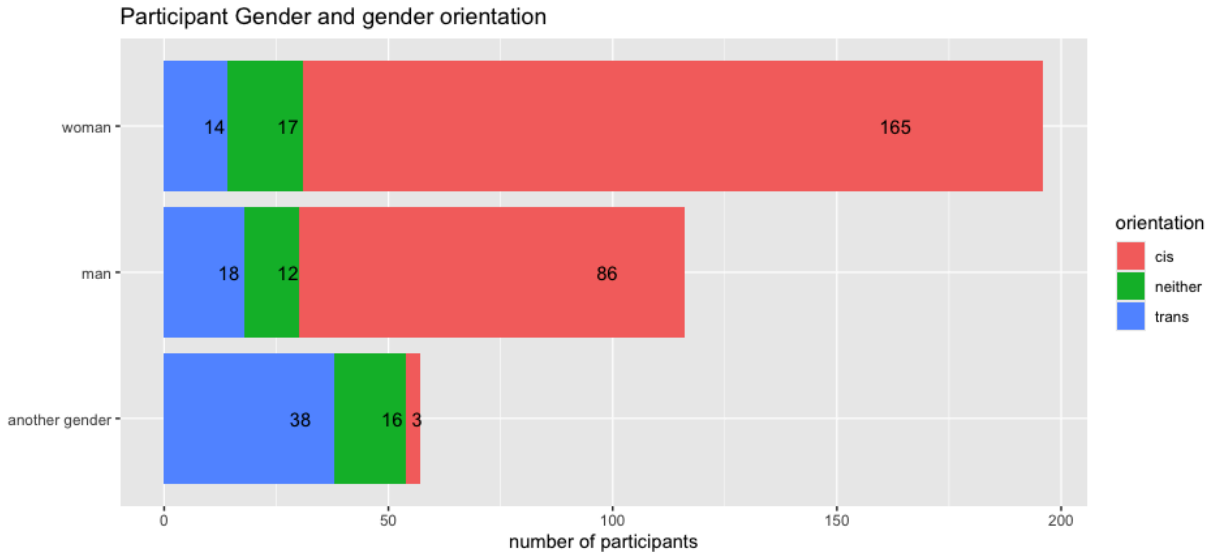

Figure 1.

In addition to a free-response question about race and ethnicity, we asked participants to report their race/ethnicity by asking, “On surveys like the U.S. Census, which of these categories

would you select?" The majority of participants identified as White on the multiple-choice question about race (295); 13 participants listed Asian, 4 listed Multiracial, 5 listed Latin American, 4 listed 'other,' and 15 responded that they 'would not answer' such a question, while 30 simply did not answer the question. The breakdown of race and gender categories is shown in Figure 2 below.

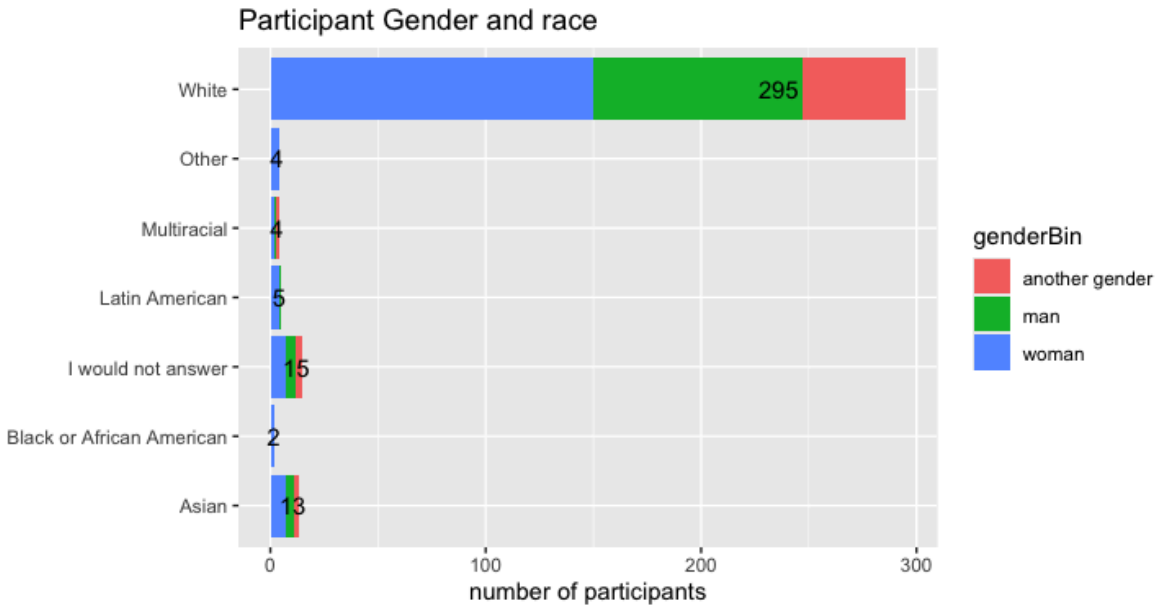

Figure 2.

The minimum age allowed in our survey was 18. The age range of participants was 19 to 79; median 35. Figure 3 shows a histogram of participant ages, which were collected by asking birth year when the study was conducted in 2024. One participant who listed their birth year as 1079 has been excluded from the dataset, as well as 1 who did not give their birth year.

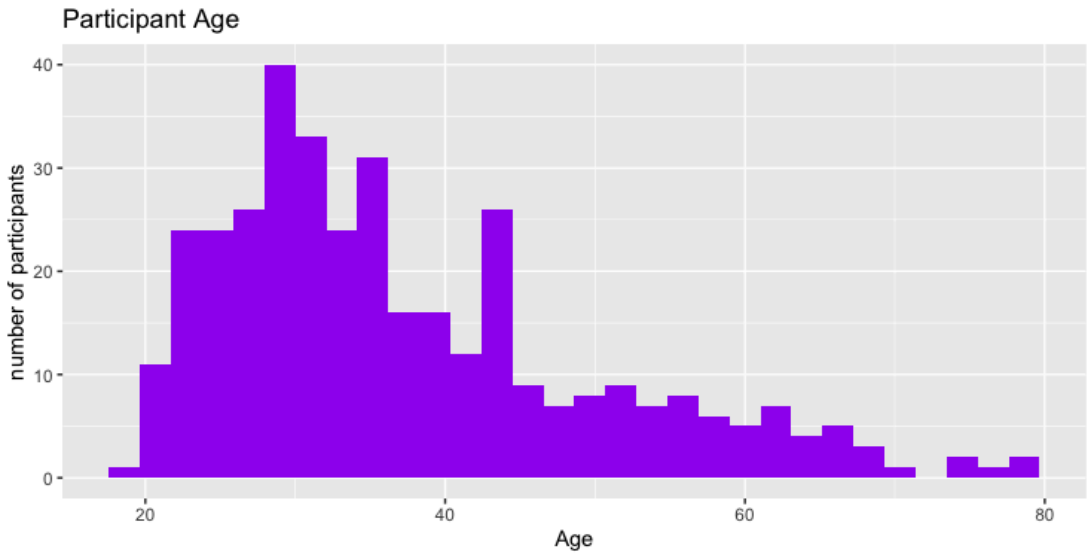

Figure 3.

4.2. ADAPTATION. In order to assess whether participants overall tended to rate items higher when they appeared later in the survey, we examined the effect of log order on average rating for each condition. Log order was used because item appearance was randomized for each participant. Figure 4 shows the effect of log order on mean acceptability rating (z-scored). Overall, there was not a clear effect of log order when taking all pronoun conditions together or when separating simply by neopronoun vs canonical pronoun (R^2 =0.01 neopronouns, <0.02 canonical pronouns). When separated out by condition, however, sentences with the pronouns (*he, she, they,* and *fae*) did not show an effect of order, while sentences with just two of the neopronouns (*fae, thon*) did, as well as both ungrammatical and grammatical filler sentences.

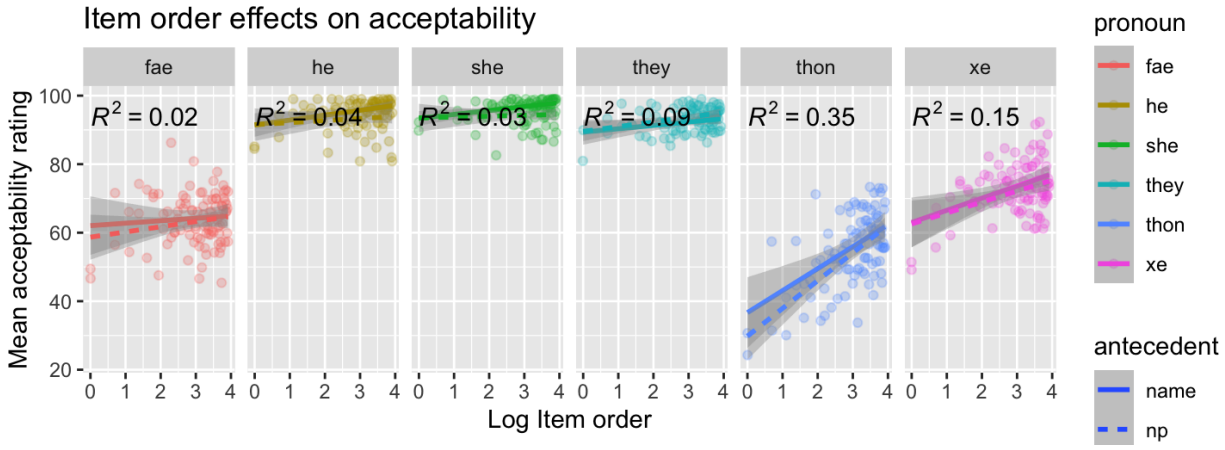

Figure 4.

Ratings for all of the neopronoun sentences were correlated with the log order of appearance ($p<0.05$ in a linear regression; R^2 in Figure 4 above), but the slope of the correlations differed between the three neopronouns. *Fae* showed the smallest slope — or smallest change in ratings over the course of the survey, followed by *fae*. '*Thon*' showed the largest change. These changes in acceptability also line up with the overall acceptability of the three neopronouns: *xe* was rated as the most acceptable overall, followed by *fae*, then *thon*.

The change in ratings of both grammatical and ungrammatical filler items followed a similar pattern. The filler sentences were taken from Sprouse et al. (2016); grammatical sentences involved two WH clauses without an island-extraction violation, while ungrammatical fillers involved a WH-island extraction violation. The ungrammatical filler items showed a greater increase in scores over the course of the survey (Fig. 5 below); however, their mean ratings at the end of the survey were still lower than all other items (including neopronouns and grammatical filler items).

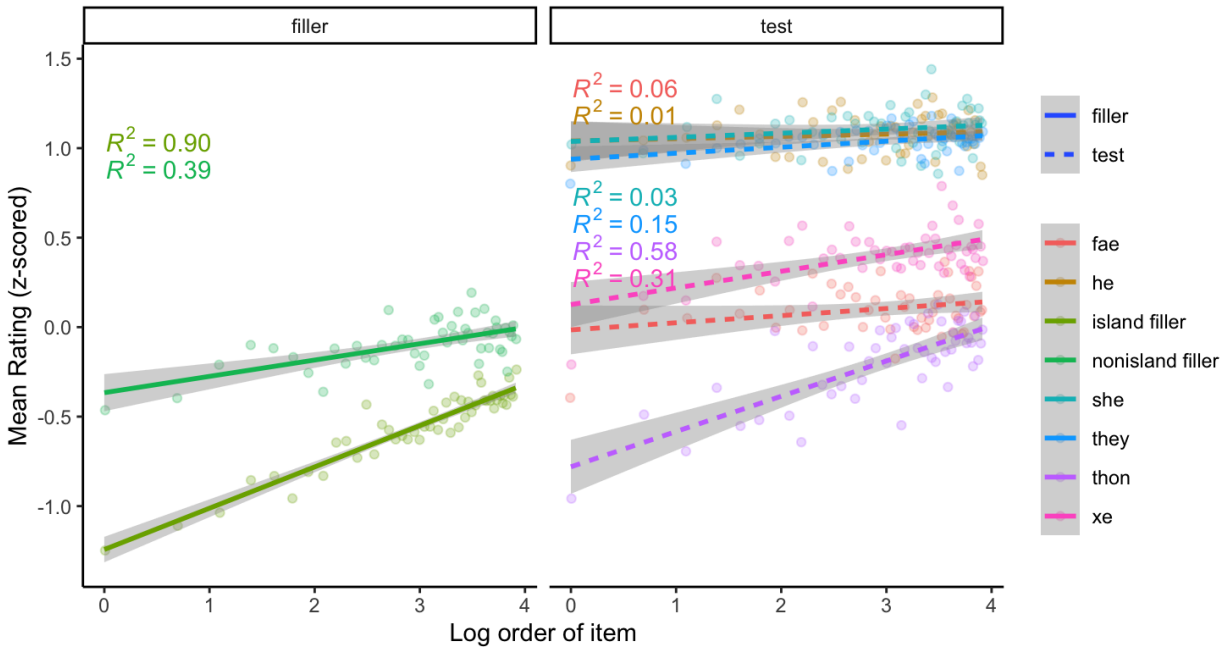

Figure 5.

In order to explore between-participant differences in adaptation, we also created adaptation scores for each individual survey participant. The scores were created by performing linear regressions of z-scored ratings by log order for each participant. Participants were considered 'adapters' if the p-value of their individual regression was <0.05 in a given experimental condition. We consider this to be a rough proxy measure, and not a direct measure of adaptation; in Section 5 we discuss how future research can be better designed to potentially measure adaptation directly. Because the order of all items was randomized for each participant, some participants saw a higher proportion of neopronouns later or earlier in the course of the survey. In the analysis that follows, we removed outlier participants whose mean slope of the regression was more than 3 standard deviations away from the overall mean, leaving us with n=369 participants for this segment of the analysis.

Based on these adaptation scores, we found that different numbers of participants adapted had a significant adaptation score in each condition. The condition in which the greatest number of participants had a significant adaptation score was sentences with neopronouns (97), followed by ungrammatical fillers (82), then canonical pronouns (70), then grammatical fillers (35). Figure 5 below shows the number of participants who had significant adaptation scores in each condition.

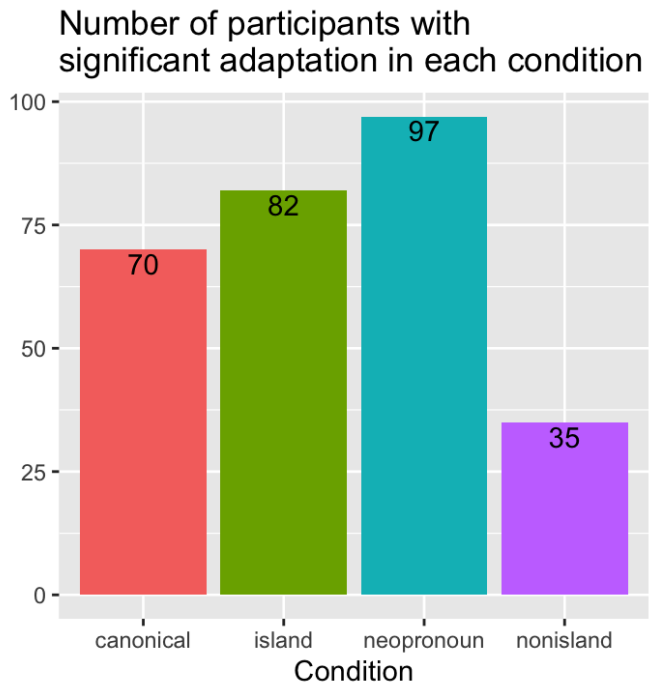

Figure 6.

Finally, we investigated whether demographic factors affected participants' likelihood of having significant adaptation scores (across all conditions, and in the neopronoun condition specifically). Overall, there was not a significant difference in the proportion of participants who adapted based on the participant age (Figure 6) or participant gender (Figure 7). There is an apparent slight trend wherein more nonbinary participants may have adapted specifically to neopronouns (Figure 7), but the effect was not significant.

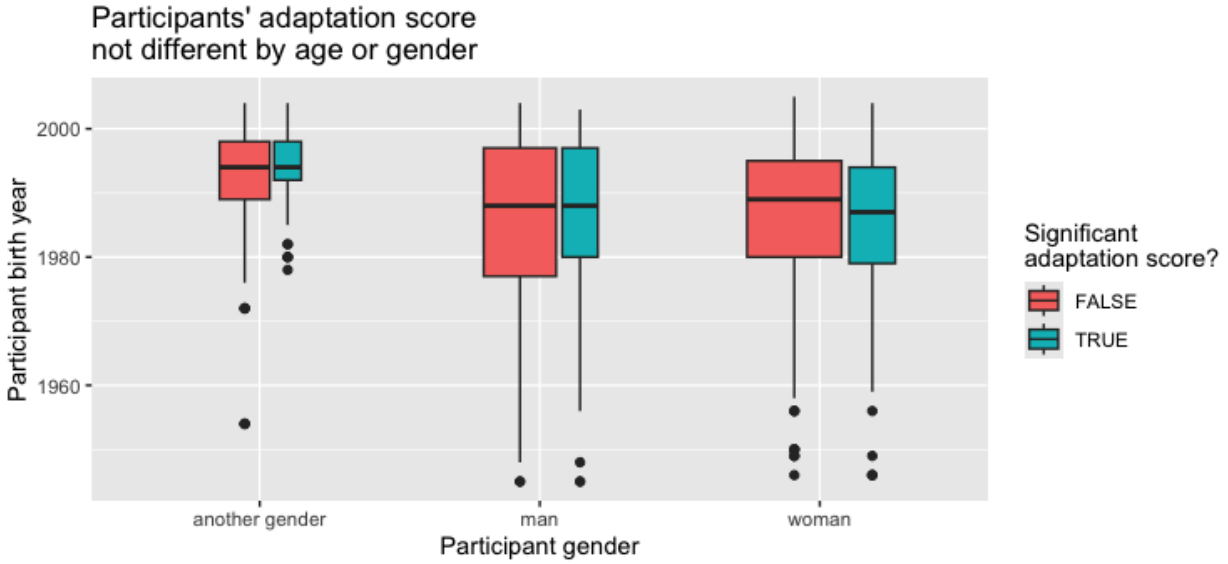

Figure 7.

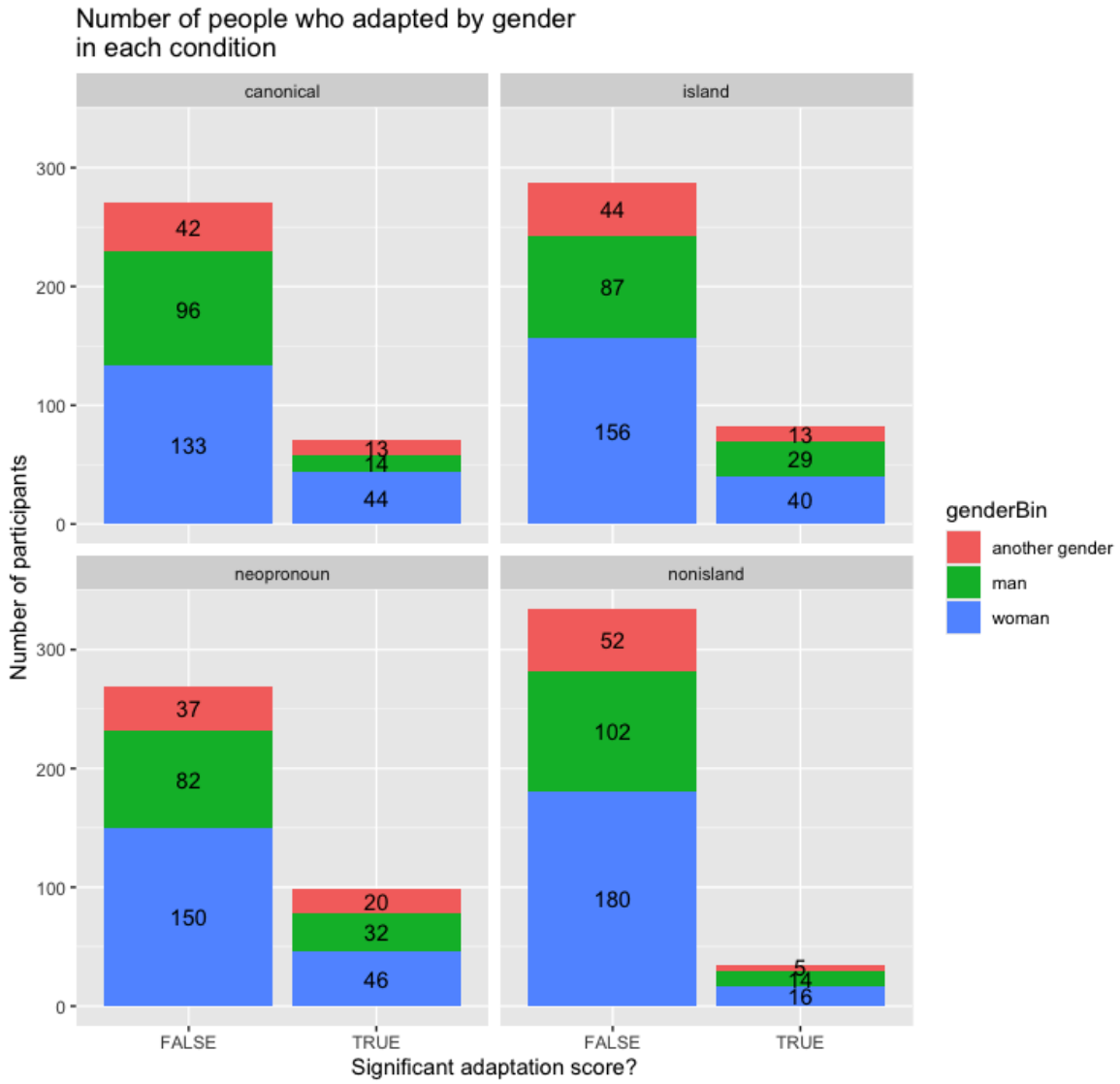

Figure 8.

In this section we have shown that some participants do appear to show possible adaptation effects in which they find sentences more acceptable over the course of the survey; this effect was found among relatively more participants in the neopronoun condition than other conditions.

4.3. METALINGUISTIC COMMENTS. In order to explore further, we analyzed the free-response comments collected from the follow-up survey. We tagged comments with tags separated into five categories: Adaptation/Learning Themes, Folk Linguistic Observations, Identity, Affect/Attitude, and Miscellaneous. The tags used in the quantitative analysis for the purposes of this paper are of the first category and are as follows: TryingToLearn, LearningIsHard, LearnedInSurvey, WouldLearnIfCommon, WouldLearnIfAsked, DiscoveredInSurvey, QueerFriendFamily, LearnedFriendFamily, LearnedFromSFF, LearnedOnline, LearnedSchool, Research, YesKnowledge, NoNever. Inter-rater reliability for taggers was not measured, but a set of specific criteria were determined for each tag. Table 1 below explains all of the tags used, categorized by overarching themes. Controversial cases were not included in the tagged comments list.

Table 1.

Overarching Theme	**Tag Explanation**	**Tag Name**
Adaptation / Learning Themes		
	i'm trying to learn/adapt	TryingToLearn
	learning/adapting is hard	LearningIsHard
	i learned / adapted in this survey - the survey made me practice	LearnedInSurvey
	I would learn this if it was more common	WouldLearnIfCommon
	I would learn if someone asked, or had a neopronoun user friend	WouldLearnIfAsked
	had not seen [pronoun] before (neutral) - the survey made me aware of its existence	DiscoveredInSurvey
	learned from queer family/friend/acquaintance	QueerFriendFamily
	learned from friend/family/acquaintance (not specified to be queer)	LearnedFriendFamily
	learned from sci-fi/fantasy books, tv, movies, etc	LearnedFromSFF
	learned from social media/online	LearnedOnline
	learned in academic/school context	LearnedSchool
	i did research (formal/informal) on neopronouns	Research
	general unspecified knowledge of neopronouns	YesKnowledge
	never heard of neopronouns (specific to Q1)	NoNever
	learned from queer communities/community service/volunteer orgs	LearnedCommunity

We analyzed the responses under the follow-up question “Have you heard of neopronouns? In what context/where did you learn about them?”, taking note of the number of comments tagged under each category to make comparisons and draw conclusions. We found that LearnedOnline had the most amount of tagged comments (n=162), with QueerFriendFamily as a distant second (n=49), followed by DiscoveredInSurvey (n=31).

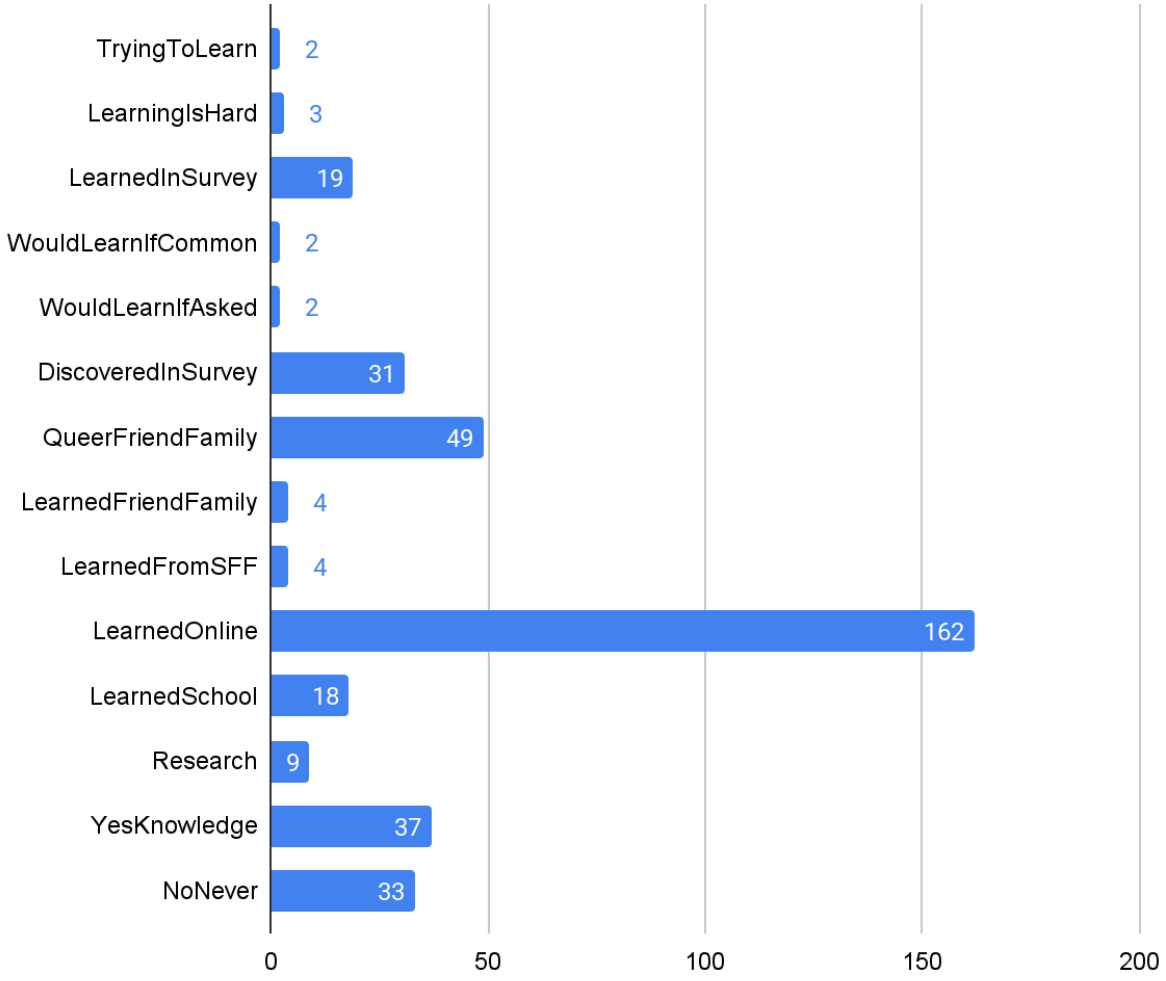

Figure 9.

While comparatively, a smaller number of participants (n=31) discovered neopronouns in the survey as compared to the number of participants who discovered them in other contexts, it is still interesting to note that participants reported discovering neopronouns in the survey. In addition, comments tagged with *LearnedinSurvey* showed that participants reported getting used to the noncanonical neopronouns throughout the course of the survey. For instance, one participant reported, “I got familiar with or learned about some of the pronouns during the questionnaire, which led me to rate later usages more natural than the previous one.” This raised the question of whether the in-survey learning of neopronouns held long-term learning effects, or

if the increased adaptation scores were merely due to short-term task adaptation. Further investigation is required to answer this question with more confidence.

Participants reported discovering neopronouns in online communities such as Twitter and Tumblr, with one response stating "Online, probably somewhere like Tumblr, in the context of social justice conversations." Others reported discovering neopronouns in academic contexts, such as "a college Linguistics course," "a feminist philosophy course. in undergrad," and "a class on language and gender." The Research tag also yielded some (n=9) results, with participants reporting to have conducted personal research on neopronouns. One participant noted that they encountered neopronouns "most frequently in the context of linguistics research."

5. Discussion. We find that participants do in fact experience adaptation over the course of taking the survey. Importantly, this adaptation is different from just having a high base acceptability of neopronouns. A participant that started with a high acceptability for a neopronoun and then had their acceptability remain high throughout the course of the survey would not be considered to experience adaptation. Likewise, a participant that had an initially low acceptability of neopronouns and did not experience an increase in acceptability would also be considered to not be experiencing adaptation. Importantly, we only consider the adaptation scores constructed in Section 4.2 to be a rough proxy measure, and not a direct measure of adaptation, and better measurements of adaptation would be a good subject for future research.

This is a possible explanation for the differences between the three neopronouns; thon showed the highest change among all participants, because its ratings were the lowest at the beginning of the survey. Likewise, for the ungrammatical and even for the grammatical fillers, a low initial acceptability could also explain the changes that they experienced.

In the post-survey free responses, participants state that they learned or adapted to new neopronouns as a direct result of seeing them used in the survey. Some participants that had already heard of some neopronouns reported learning about the existence of other new neopronouns. Additionally, some participants grew more accustomed to neopronouns through repeated exposure from the survey. They claimed that the practice provided by seeing the neopronouns used in sentences increased their comfort with the pronouns. Examples of comments from participants are given in (1)-(6) below (emphasis added).

(1) "I am in a place, both physically and socially, where neopronouns are uncommon. So for me, they stand out in every sentence and cause me to stumble when reading. There's really nothing to change about it. **I'd get used to them over repeated use and exposure**."
(2) "I also think that **I adjusted to the neopronouns the more that I saw them**."
(3) "I'd never realized fae/faer was an alternate pronoun (so confused it with the noun "fae"), so marked the usage unnatural. **It felt less unnatural once I realized it was a possible alternate** to gendered pronouns."
(4) "**I just learned some new pronouns**... Need to learn how to apply them now."
(5) "The different pronouns stood out but **didn't make me want to change them, just look them up to see what they were**."
(6) "I noticed that my brain was finding the neopronouns more unfamiliar in professional settings (ie, a sentence about a doctor or lawyer) than personal ones (a sentence about person bringing something to a barbecue). **I'm glad I noticed this bias so I can work on it!** "

While it is not possible to determine the difference between task adaptation and learning an entirely new form solely from looking at the quantitative survey data, it is possible to combine these quantitative results with the qualitative data that participants provided in the free response questions at the end of the survey in order to more fully interpret them and make claims about what behavior is actually happening. In fact, participants give specific examples of new neopronouns that they learned of and stated that the survey taught them the pronouns. Participants also stated that the survey made them grow more accustomed to the neopronouns and that it was helpful as practice using them. Participants perceived the survey as an authoritative and reliable resource that could teach them about language. This is a very similar phenomenon to that found by Vaughn (2022) where participants perceive a linguistic survey that is attempting to collect data as an informative resource.

The implications of this possibility are important to consider further. The fact that linguistics are studying something inherently gives it legitimacy, because linguists are perceived as arbiters of what forms speakers are allowed to say and use. A pronoun appearing in a linguistic survey can have a similar effect to that of a word being included in a dictionary. Despite dictionaries and linguistic studies being descriptive of existing language use, they are interpreted as prescriptivist authorities. Another factor that might contribute to this effect is how few existing formal sources there are that give information about neopronouns. This would cause a source like this survey to be weighed much more strongly than it would otherwise be. Moreover, participants discussed the survey as having given them a chance to practice using neopronouns. Put together, these factors could mean that surveying neopronouns might be causing participants to change their acceptance of neopronouns and that the acceptability increases that we see over the course of the survey might in fact be a form of learning and not just task adaptation.

6. Conclusion. From the results found in this study, it appears as though some participants did in fact adapt to neopronouns. However, it is not possible to tell if this effect will or will not last beyond the end of the survey. One thing that is visible from looking at qualitative free response data is that people interpret linguistics surveys as educational resources. This makes it even more important to be aware of the effects they might have on participants' language use. Particularly for very low-frequency forms like neopronouns, just a little bit of exposure might cause significant changes to participants' perceptions or acceptance of them. This also means that more exposure to neopronouns might cause them to take off in broader contexts and see widespread use. This has already happened in Swedish.

There are many other possibilities for future research using the data collected in this study. It would be interesting to look more deeply at the possibility for other social or demographic effects asked for in the survey and see how they might or might not interact with neopronoun acceptability. It would also be very useful to determine if there is any relation between adaptation coefficients and the tags in the metalinguistic comments at the end of the survey. In a similar vein, it would also be interesting to look for other themes in the free response comments.

In further research and future studies, it would be important to devise a method for measuring adaptation that is more effective and accurate than the current proxy. Timed measures (such as Maze tasks, timed reading, or eye-tracking) and delayed re-testing may help to differentiate these effects. It would also be interesting to control for task adaptation effects by comparing the responses to text based and audio based stimuli sentences. It would also be a good idea to include post-survey debrief questions (Vaughn 2022) that target possible sources of

desirability bias or accommodation, since this would be an important factor to rule out when studying adaptation effects in a linguistic survey. Finally, it would be very interesting to look at neopronoun acceptability in longitudinal study to see if language users change their acceptability over time. This could be an interesting window into how English neopronoun use is changing in general.

References

Baron, Dennis. What's Your Pronoun? Beyond He and She. 1st ed, Liveright Publishing Corporation, 2020.

Diaz, Adriana Raquel, et al. "Gender Neutral and Non-Binary Language Practices in the Spanish Language Classroom: Tensions between Disciplinary and Societal Changes." L2 Journal, vol. 14, no. 3, Apr. 2022. DOI.org (Crossref), https://doi.org/10.5070/L214356302.

Eckert, Penelope, and Sally McConnell-Ginet. Language and Gender. Second edition, Cambridge University Press, 2013.

Hekanaho, Laura. "Generic and Nonbinary Pronouns: Usage, Acceptability and Attitudes." Neuphilologische Mitteilungen, vol. 121, no. 2, July 2021, pp. 498–509. DOI.org (Crossref), https://doi.org/10.51814/nm.107784.

McConnell-Ginet, Sally. (2013). "Gender and its relation to sex: the myth of 'natural' gender," in *The expression of gender*, De Gruyter Mouton Berlin, 2013, pp. 3–38.

Muysken, Pieter. Functional Categories. 1st ed., Cambridge University Press, 2008. DOI.org (Crossref), https://doi.org/10.1017/CBO9780511755026.

Prasad, Grusha, and Tal Linzen. "Rapid Syntactic Adaptation in Self-Paced Reading: Detectable, but Only with Many Participants." Journal of Experimental Psychology: Learning, Memory, and Cognition, vol. 47, no. 7, July 2021, pp. 1156–72. DOI.org (Crossref), https://doi.org/10.1037/xlm0001046.

Renström, Emma A., et al. "The Multiple Meanings of the Gender‐inclusive Pronoun Hen: Predicting Attitudes and Use." European Journal of Social Psychology, vol. 52, no. 1, Feb. 2022, pp. 71–90. DOI.org (Crossref), https://doi.org/10.1002/ejsp.2816.

Spiegelman, J. D.(2024)."The pronouns EXIST!": Linguistic existence in the borderlands as a U.S. non-binary heritage learner of Spanish.Critical Multilingualism Studies, 11(2),78–102. ISSN 2325–2871.

Sprouse, Jon, Ivano Caponigro, Ciro Greco, & Carlo Cecchetto. 2016. Experimental syntax and the variation of island effects in English and Italian. Natural Language and Linguistic Theory 34: 307-344.

Van Berlekom, Elli, et al. "Toward Visibility: Using the Swedish Gender-Inclusive Pronoun Hen Increases Gender Categorization of Androgynous Faces as Nonbinary." Journal of Language and Social Psychology, vol. 43, no. 5–6, Oct. 2024, pp. 525–43. DOI.org (Crossref), https://doi.org/10.1177/0261927X241289914.

Vaughn, C. (2022). "Every participant counts: Social action in experimental sociolinguistics," presented at the New Ways of Analyzing Variation, San Jose, CA, 2022.

Zehr, J., & Schwarz, F. (2018). PennController for Internet Based Experiments (IBEX). https://doi.org/10.17605/OSF.IO/MD832