

The Role of Consent Form Design Under GDPR: A Survey Experiment

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Abstract

The present research note examines how design features of consent forms impact response rates, privacy concerns, and respondents' knowledge of their rights. The 2018 implementation of the General Data Protection Regulation, also known as General Data Protection Regulation (GDPR), has triggered widespread concern in the scientific community across the European Union. The concern is that the GDPR requirements for the processing of personal data may introduce severe limitations on certain types of research. A key requirement of the GDPR is that researchers must obtain informed consent from individuals whose personal data will be processed as part of the research. Consent must be freely given, specific, informed, unambiguous, and given actively via a clear affirmative action. However, in practice, there is a wide variation in the interpretation and implementation of the GDPR. Therefore, this study aims to investigate how to ensure informed consent without compromising the needs of academic research. To do so, we fielded a survey experiment with a 2 × 2 × 2 between-subjects design, varying key dimensions of the survey consent form. The results of this study document the advantages of using condensed information and in-text legal references (as opposed to a hyperlink).

The 2018 implementation of the General Data Protection Regulation (GDPR) in the European Union has triggered widespread concern in the scientific community that GDPR requirements for the processing of personal data may introduce severe limitations for research (EPSR, 2019). The GDPR framework establishes a series of legal rules that researchers must follow to obtain informed consent from individuals whose personal data will be processed as part of the research. Consent must be freely given, specific, informed, unambiguous, and given actively via clear affirmative action ((Regulation (EU), 2016)). How these rules should be implemented exactly is not always clear, however, resulting in a wide variation in their interpretation and implementation. Hence, consent forms and cover letters come in all lengths and formats across different countries and research institutions within the EU (EPSR, 2019).

For survey-based research, achieving high response rates is essential for ensuring the quality of the data that researchers use to draw inferences (Sakshaug & Kreuter, 2012; Sivo, Saunders, Chang, & Jiang, 2006). Research has indicated that the wording of the information in cover letters and consent forms has effects on response rates with, for instance, simple language yielding a higher response rate than more complex language (Fazekas, Wall, & Krouwel, 2014). Thus, variations in how information in GDPR consent forms is conveyed have potential ramifications for response rates and respondents' understanding of the consent process.

This study empirically investigates how to ensure informed consent and protection of personal data without compromising the needs of academic research, in particular maximizing survey response rates (Buskirk, Kirchner, Eck, & Signorino, 2018; Leon, Aizpurua, & van der Valk, 2021). Additionally, this research might inform a harmonization of guidelines that could ease collaboration across the EU and beyond. For instance, the consent form collection published by the AAPOR also documents substantial variation in approaches across IRB's in the U.S. (AAPOR, 2023b).

Besides few exceptions (e.g., Nouwens, Liccardi, Veale, Karger, & Kagal, 2020), there is limited research on the impact of different applications of GDPR consent messages on response rates, privacy concerns, and respondents' knowledge of their rights, even though privacy concerns can lead to nonresponse or less accurate and more socially desirable responses (Sala, Knies, & Burton, 2014; Singer, 1979; Singer, Von Thurn, & Miller, 1995). Respondents' knowledge of their rights (and of the consent process) is essential to ensure that consent is *informed* while also maximizing response quality, compliance, and retention (Kadam, 2017; Sakshaug, Schmucker, Kreuter, Couper, & Holtmann, 2021). The present study examines how different design features of GDPR consent forms impact response rates, privacy concerns, and respondents' knowledge of their rights.

Outside of the GDPR scope, extant research already focused on the impact of consent form design. Hauck and Cox (1974)

found that respondents feel more informed, and, therefore, are more likely to consent when the consent form is longer and more detailed. However, Fazekas et al. (2014) suggested that shorter consent forms increase knowledge of the consent process and consent rates, because respondents may be more likely to carefully read shorter forms. Other studies found that more elaborate legal references tended to decrease consent rates (Anderson, Newman, & Matthews, 2017; Singer, Hippler, & Schwarz, 1992) while asking for explicit consent in more demanding ways (i.e., opt-in consent) was found to decrease consent rates (Courser, Shamblen, Lavrakas, Collins, & Ditterline, 2009; Singer, 1978).

Building upon previous research (e.g., Leon, Aizpurua, & van der Valk, 2021, Nouwens, Liccardi, Veale, Karger, & Kagal, 2020), we focus on three key components of consent forms on which the GDPR leaves room for interpretation. In an experimental design, we vary (i) the level of detail of the information presented (condensed vs. detailed); (ii) the extent of legal references (full details vs. linked reference); and (iii) how demanding the act of giving consent is (by providing explicit consent versus by simply starting the survey) to explore the effects on response rates, privacy concerns, and respondents' knowledge of their rights. In the following section, we demonstrate that findings in extant research are mixed, which is why we consider our study an explorative experiment and pose research questions rather than stated and pre-registered directional hypotheses.

Research Questions

Previous research on the role of the complexity or length of consent forms is mixed. Studies provided support for longer descriptions of the research being more effective in increasing consent rates (Hauck & Cox, 1974), no effect of the detailedness and complexity of the consent form on consent rates (Buskirk, Kirchner, Eck, & Signorino, 2018, Dillman, Singer, Clark, & Treat, 1996), or lower consent rates when consent forms are more detailed (Fazekas et al., 2014; Perrault & Nazione, 2016). On the one hand, more complex and longer consent information may indicate a high cost of completion (e.g., length, cognitive demands) for the respondent, which might be discouraging (Fazekas et al., 2014). Complex and longer consent information can contribute to cognitive overload (Paas, Renkl, & Sweller, 2003), making it difficult to process the information, triggering a potential decision not to participate and/or skip the information provided. Yet, on the other hand, it is also possible that longer consent forms with more information inform respondents better and, therefore, increase participation by reducing privacy concerns and increasing trust in the researchers. Against this backdrop, we ask the first research question (RQ1): How do the length and level of detail of consent forms (long and detailed vs. condensed and less detailed) influence respondents' (a) consent rates, (b) privacy concerns, and (c) knowledge of their rights?

Regarding different types of legal references and confidentiality assurances (e.g., level of detail), on the one hand, they may give respondents extra assurance that their data are handled confidentially, which could decrease privacy concerns and raise participation rates. On the other hand, some scholars found that more complete and elaborate legal references were associated with lower participation rates (Singer et al., 1992). These lower participation rates might stem from legal

complexity, involving potential confusion due to the intricacy or technicality of legal language (Schenker et al., 2018), or information overload, because participants are presented with an overwhelming amount of information, making it challenging to process (Mcluhan & Fiore, 1967; Paas et al. 2003). Other studies have demonstrated that respondents tend to find long legal descriptions burdensome and not important (Anderson et al., 2017; Kraft et al., 2020). Suggestions to avoid these negative consequences include the use of hyperlinks referring to additional information. We ask the following research question (RQ2): how does the level of detail of legal references influence respondents' (a) consent rates, (b) privacy concerns, and (c) knowledge of their rights?

Finally, explicit consent can be given in various ways (e.g., by ticking a box, signing, or simply scrolling through a web page). Previous studies have found that asking for explicit consent in more demanding ways (i.e., opt-in consent) potentially induces decision fatigue or privacy concerns and decreases consent rates (Courser et al., 2009; Nouwens et al., 2020; Singer, 1978). Others, however, have suggested that active choice opt-in (having to tick a box or sign to give consent) results in greater comprehension and retention of consent information, as people become more conscious about the choice they make (Marshall et al., 2017). If more demanding ways of asking for consent motivate respondents to pay attention to what they provide consent to (Festinger, Dugosh, & Marlowe, 2008), it may affect their privacy concerns and knowledge of their rights. Given the mixed evidence, we ask the following research question (RQ3): how does the level of demand in asking for explicit consent influence respondents' (a) consent rates, (b) privacy concerns, and (c) knowledge of their rights?

Methods

To investigate these effects of different characteristics of consent forms, we conducted a survey experiment in Flanders, Belgium. The survey-embedded experiment received ethical approval from the Ethics Committee for the Social Sciences and Humanities at the University of Antwerp and was fielded in September 2021 via that university's online citizen panel. Respondents in the panel are asked to participate in surveys on political topics about twice a year. The majority of panelists were recruited in May 2019. After consulting a Voting Advice Application developed by researchers of the University of Antwerp, filled in by over 2 million Flemish citizens, citizens could opt-in to become part of this panel which 40,450 did.

A total of 7,943 respondents, randomly selected from this online panel, were invited to participate in the survey via email. 3,646 (45.9%) opened the invitation link and 3,520 (96.5%) consented to participate in the survey resulting in a participation rate of 44.3% (AAPOR, 2023a).¹ Some respondents consented, dropped out, or did not answer questions about socio-demographics, privacy concerns, or knowledge of their rights, leaving us with 2,189 respondents who completed and gave valid answers to all questions (62.1% of all

¹ The experiment was part of a larger survey about political attitudes, and more specifically political polarization. All the questions for this experiment were asked at the start of the survey to avoid these other questions confounding our results. The survey opened with the consent page and was then immediately followed by questions on privacy concerns and knowledge about their rights.

Table 1. Overview Treatment Conditions

Experimental group	Detailed or condensed	Full legal references or hyperlink	Consent	N
1	Detailed	Legal references	Demanding	372
2	Detailed	Legal references	Less demanding	365
3	Detailed	Hyperlink	Demanding	360
4	Detailed	Hyperlink	Less demanding	364
5	Condensed	Legal references	Demanding	370
6	Condensed	Legal references	Less demanding	380
7	Condensed	Hyperlink	Demanding	364
8	Condensed	Hyperlink	Less demanding	357

respondents who consented).² The panel, and by extension our sample, is diverse, but not fully representative of the Flemish population; older, male and higher educated people are overrepresented in our sample (Appendix A shows descriptive statistics).

Respondents in the panel are very likely to have experience filling out surveys and may pay limited attention to the consent form. This provides us with a conservative design because any effects of variations in the consent form might be stronger among less experienced survey respondents. However, this approach is in line with the current reality where researchers frequently make use of online panels from survey companies, consisting of respondents who generally have experience filling out surveys, which speaks to the ecological validity of the design.

The experiment followed a $2 \times 2 \times 2$ between-subjects design, as three different dimensions of the survey consent form were manipulated. The first dimension was whether the information to respondents on their rights and the purpose of the processing of their personal information was detailed or condensed. All essential rights of the respondents—as required by GDPR rules (GDPR, Article 7; EDPB, 2020)—were presented in both versions (e.g., that data will not be shared with third parties, that participation is voluntary, that the results of the study will only be reported in an anonymous way). In the detailed conditions, we provided a thorough description of these rights (355 words), whereas in the condensed conditions, we summarized these rights in nine simple bullet points (170 words). Second, we varied whether the consent form contained full legal details. One version made explicit references to the applicable laws (the Belgian 1992 privacy law and GDPR) and mentioned that the study falls under the jurisdiction of the Belgian Data Authority Protection. In the other version, we simply integrated a hyperlink in the consent form that led to the same information. Finally, we varied the way in which respondents had to provide their consent. In one version, respondents would give consent by simply clicking the “next” button to start the survey. In the more demanding version respondents had to explicitly tick a box stating “I have read and understood this form. I agree to participate in this research under the conditions described” to give consent and start the survey.

It is important to note that the design of the experimental consent forms had to comply with GDPR rules for data collections that include sensitive personal information. This

requirement means that in all conditions the exact legal references needed to be mentioned, that some form of consent from respondents was needed, and that basic information about respondents’ rights needed to be present. Thus, we could not explore effects of making the condensed condition even shorter, leaving out legal references, or asking for no consent at all. However, all surveys within the EU work within these restrictions and similar information is also provided in consent forms in templates from non-EU universities, as published for instance by AAPOR (2023b). In countries outside the EU, it may be possible, though, to create larger variations in these factors which would likely yield stronger effects, meaning that our findings are conservative estimates of potential effects in such contexts.

The combination of the three different two-level dimensions resulted in eight different experimental conditions to which respondents were randomly assigned (Table 1). The exact formulation of each condition can be found in Appendix B. The median time respondents spent on the consent forms was about 25 s.

We focus on three dependent variables: consent rate, respondents’ privacy concerns, and knowledge of their rights as respondents. For the consent rate, we compared between conditions how many respondents started the survey and how many respondents gave their consent (they did not close their browser or explicitly indicated that they did not give their consent). Although it would have been informative to inquire about the reasons for not giving consent, GDPR regulations prohibited asking any follow-up questions in the event of a declined consent.³

Second, to measure privacy concerns, we asked respondents who consented to indicate their level of agreement with ten statements (listed in Appendix C), from strongly disagree (0) to strongly agree (4). These statements are inspired by the work of Earp, Anton, Aiman-Smith, and Stufflebeam (2005) on concerns regarding internet privacy and adapted to the context of this study. Nevertheless, a principal component analysis (Appendix D) showed that two items formed a separate factor. We, therefore, retained the other eight items which we summed into one scale ($\alpha = 0.92$), ranging between 0 and 32, with higher scores indicating more privacy concerns.

Finally, we asked respondents to indicate whether four statements about their rights as respondents were true or false. Respondents also had to answer a multiple-choice question asking them about the laws to which the study was subject (Appendix C). For each item, respondents

² The largest dropout was due to respondents not filling in their age. Over 20% did not fill this in. However, if we run our analyses excluding age and retaining these respondents we reach similar conclusions.

³ Post-model estimates show that a Poisson model is better suited than a negative binomial model.

got a 1 if they selected the correct answer and a 0 if the answer was incorrect or they did not know the answer, which was summed into a single knowledge scale ranging from 0 to 5.

Results

Consent rates were generally high (over 95% in all conditions). To isolate the effects of the three separate experimental dimensions, we conducted a logistic regression analysis (Model 1, Table 2). First, no difference was found between the detailed and the condensed conditions (RQ1a). The model did, however, show a significant effect when it comes to full legal references ($b = -.474$; $p = .021$). We find that dropout is higher when legal references are added in a hyperlink rather than in the text (RQ2a). To get a grasp of the strength of this effect, we also looked at the predicted probabilities which show that the probability of dropping out increased from 2.2% to 3.4% when using a hyperlink rather than including full legal references in the consent form. This is a substantial effect. Finally, when it comes to RQ3a, no evidence is found that the way consent is asked influences consent. Respondents were equally likely to consent when they had to give explicit consent by ticking a box, as when they gave their consent by just starting the survey.

Next, we focused on respondents' privacy concerns. Model 2 (Table 3) shows the effect of each experimental dimension on respondents' privacy concerns, controlling for gender, age, and education in a linear regression analysis. We found no significant differences between the detailed or more condensed information conditions, nor between legal references that are given in full or via a hyperlink (RQ1b and RQ2b). Also, how citizens had to provide their consent did not affect their privacy concerns. In short, the experimental manipulations did not seem to affect respondents' privacy concerns in any way.

Finally, Model 3 (Table 3) shows the results of a Poisson regression with the additive knowledge scale as dependent count variable (see Footnote 3). First, we found that respondents scored higher when they were informed about their rights in a condensed manner (RQ1c) ($b = -.079$; $p = .005$). When we looked at the marginal values, we found that respondents in the condensed conditions were predicted to answer

Table 2. Logistic Regression Analysis of Dropout

	Model 1 Drop-out
Detailed	-0.060 (0.200)
Full legal references	-0.474** (0.205)
Demanding consent	0.375* (0.203)
Constant	-3.502*** (0.201)
N	3,646

Note. Standard errors are in parentheses.

* $p < .1$.
** $p < .05$.
*** $p < .01$.

Table 3. Linear Regression Analysis (Model 2) and Poisson Regression (Model 3) of Privacy Concerns and Knowledge

	Model 2 Privacy concerns	Model 3 Knowledge
Detailed	0.216 (0.278)	-0.079*** (0.028)
Full legal references	-0.068 (0.277)	-0.039 (0.028)
Demanding consent	-0.324 (0.278)	0.040 (0.028)
Woman	0.012 (0.321)	-0.048 (0.032)
Education (ref = low)		
• Middle	-0.506 (0.666)	0.003 (0.069)
• High	-1.886*** (0.621)	0.094 (0.064)
Age	0.023** (0.010)	0.000 (0.001)
Constant	10.386*** (0.893)	0.856*** (0.091)
N	2,189	2,189
R ²	0.015	0.003

Note. Standard errors are in parentheses.

* $p < .1$.
** $p < .05$.
*** $p < .01$.

on average 2.44 questions correctly, whereas this dropped to 2.24 for the detailed form. This finding shows that respondents learn *more* about their rights when the information is presented in a condensed format.

There may be different explanations for this effect. Respondents may experience information overload when reading a long format, or the long format may cause them to skip reading it in the first place. Although we could not fully test this mechanism—we lack a measure of information overload—further analyses hinted more at the information overload explanation. When controlling for the time spent on the consent page (Appendix E), we found no mediation by time, suggesting that the difference is unlikely to be caused by people spending less time or skipping the long consent form.

When we looked at the two other manipulated dimensions, we found no effects. Neither the way consent is asked (RQ3c) nor whether legal references are given in full or via a hyperlink (RQ2c) influenced respondents' knowledge of their rights. We also looked at interactions between the different dimensions for the different dependent variables to explore whether certain combinations may influence our outcome variables. None of the possible interaction terms yielded any effect. Finally, as a robustness check, we tested whether our results may have been biased by the fact that our sample was on average older and that males were overrepresented, by examining whether the effects of the experimental conditions are different depending on gender and age. The analyses showed that this was not the case (Appendix F).

Conclusion

In this study, we looked at three key elements of survey consent forms, namely the level of detail of the information presented (condensed vs. detailed); the extent of legal references (full details vs. linked information); and the level of demand in asking for consent (providing explicit consent versus simply starting the survey), and investigated how these impacted respondents' consent rates, privacy concerns, and knowledge of their rights.

Our results show that more condensed consent forms may be more beneficial than longer consent forms, as they improve respondents' knowledge about their rights, without negatively impacting respondents' consent rates or privacy concerns. Although further research should study the exact mechanism, this finding is possibly related to the fact that survey respondents tend to find long and detailed information burdensome (Anderson et al., 2017) and may experience information overload. This results in storing less information.

Second, our results showed that using a hyperlink for legal references instead of including legal information in the consent form leads to more dropout. It might be that the use of a hyperlink leaves the impression that the researchers behind the survey are less concerned with handling data appropriately. Another possibility is that respondents do not return to the survey once redirected to a different page via the hyperlink. Nevertheless, this finding suggests that it is advisable for researchers to include legal references *within* the consent form.

Finally, we found no significant differences on any of the three outcomes between the conditions in which it was more or less demanding for the participants to give their consent. Taken together, we find that to maximize consent rates and respondents' knowledge of their rights, consent forms that present information in a more condensed way with in-text legal references (as opposed to hyperlinks) are the most effective.

There are some limitations to our design. We relied on experienced panelists, who have experience with filling in surveys and who have been informed about their rights before. Although using experienced panelists is typical in today's online survey-based research, this makes our results somewhat conservative, likely also explaining—at least to some extent—why we did not observe major treatment effects. The test is also conservative given that our sample was not fully representative; older and male respondents were overrepresented. Especially regarding age, previous research has indicated that older respondents may be more likely to consent (Jenkins, Cappellari, Lynn, Jackle & Sala, 2006). While this means that we need to be careful with making conclusions about our non-significant results, the fact that in such a conservative setting we *did* find significant effects on consent rates and respondents' knowledge, highlights the importance of different characteristics of consent forms in online surveys. This research therefore contributes to our understanding of the role of key aspects of consent forms in the GDPR context.

Another limitation of our study is that GDPR rules prevented us from asking respondents who did not consent why they declined. Because of this limitation, we cannot exclude the possibility that dropout is confounded with privacy concerns or knowledge of one's rights. People may have dropped out exactly because the experimental condition increased their concern about their privacy rights or affected their

knowledge of these rights. This could, for instance, potentially explain the effect of the condensed format on knowledge, if those with the most knowledge about their rights were more likely to dropout after being exposed to the detailed information. While this alternative explanation is not very likely, since we did not find an effect of the size of the consent form on dropout, we cannot fully exclude it. Overall, this research note serves as an exploration of the issue of consent that most researchers experience, in particular those working within the EU, but also beyond. We encourage future research to further explore effects of other potential dimensions in formal consent forms and the mechanisms behind these effects.

Biographical Notes

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Conflict of interest

None declared.

Supplementary Data

Supplementary data are available at *International Journal of Public Opinion Research* online.

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