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Appendix: Detailed Analysis Methods

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■ APPENDIX: Detailed Analysis Methods

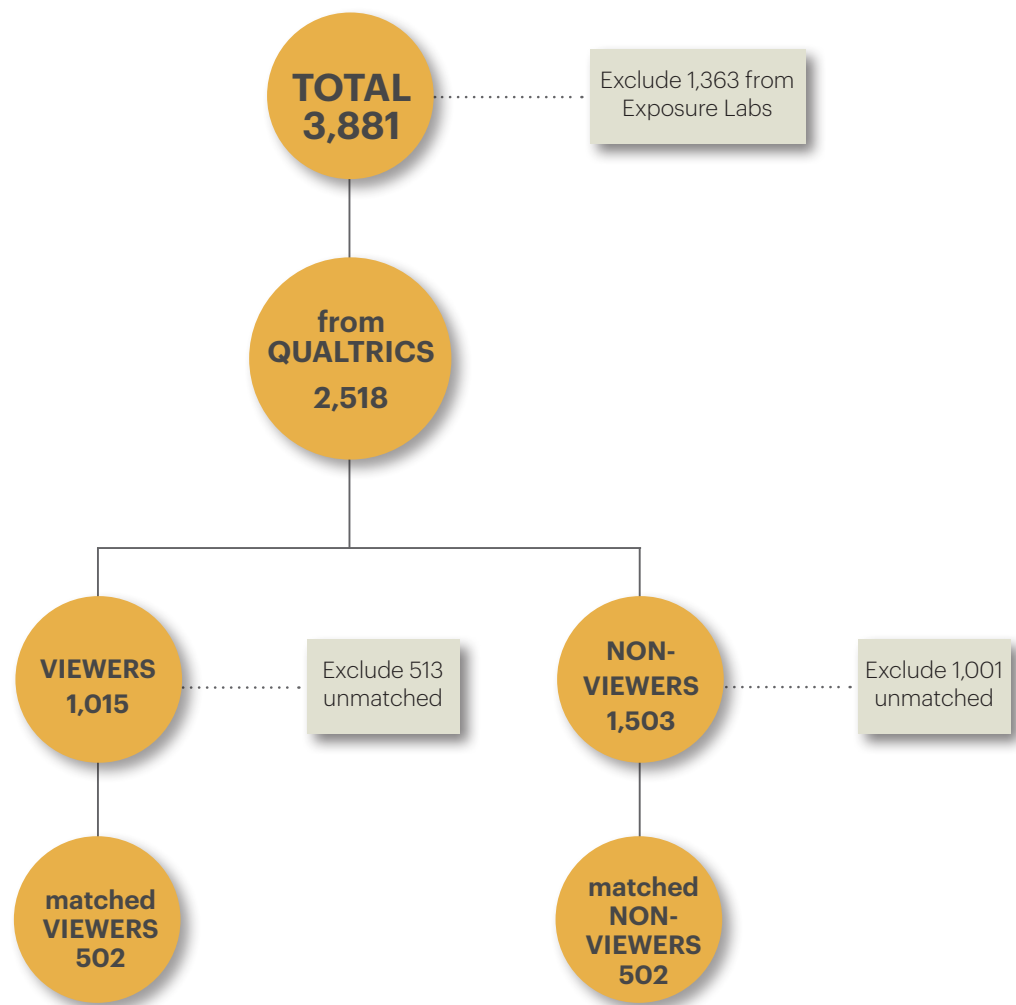
PROPENSITY SCORE MATCHING (RQ1)

We developed a preliminary propensity model based on theoretical variables and existing research on who is most likely to watch social issue documentaries, as well as documentaries on this topic. These variables included things like education level, parenthood status, affinity for social issue documentaries, and general level of concern about the issues discussed (e.g., wariness toward social media). Viewers and non-viewers were also matched on demographic characteristics (e.g., white/non-Hispanic or not, 18 to 34 years old vs. 35 to 60, income above or below \$50,000, bachelor's degree and above vs. below). A total of 14 variables emerged as predictive of exposure and were included in the final propensity model (Table 2). Based on these variables, we generated a propensity score for each survey participant.

Demographics	• White, non-Hispanic • 18 to 34 years old • Bachelor's degree or above • Earns \$50,000 or more annually
Ideology/Politics	• Politically liberal to very liberal • Party Preference: Democratic or Republican
Viewing Habits	• Watch documentaries that address social issues once a month or more frequently • Watch documentaries to learn about social issues • Watch documentaries because they find films about social issues interesting • Believe a film or documentary can have a moderate or large impact • Have heard concerns associated with social media and search technologies
Social Media	• Have 5+ social media accounts • Have recognized negative effects of using their social media accounts sometimes or more • Believe technology contributes more than somewhat to social problems

Table 2. Variables Included in Propensity Model (Predictive of Exposure)

The sample recruited by Exposure Labs differed in several ways from the Qualtrics sample. Only 4% of Exposure Labs respondents (N = 61) were non-viewers. Among viewers, Qualtrics respondents were more likely to be male (44% vs. 29% in Exposure Labs sample) and parents (71% vs. 38% in Exposure Labs sample). Because of these differences, we determined it was not appropriate to match viewers and non-viewers across samples, and it was not possible to match within the Exposure Labs sub-sample. Thus, for the PSM analysis, we excluded participants recruited by Exposure Labs and matched viewers with non-viewers within the Qualtrics sample only (N = 2,518).



We identified 502 matched pairs of Qualtrics-recruited viewers and non-viewers with approximately equal propensity for exposure to *TSD*. Each viewer in the dataset has a corresponding non-viewer with an approximately equal propensity for exposure. In this way, we can more accurately attribute differences in knowledge, attitudes, and behavior to the impact of the film, rather than pre-existing differences between viewers and non-viewers.

To examine RQ1, we ran comparisons between viewers and matched non-viewers using paired t-tests for continuous outcome variables and chi-square tests for categorical outcome variables. We report findings that achieved statistical significance at $p < .05$.

All Viewers (RQ2, 3 & 4)

We used the sample of all viewers of *TSD* (N = 2,317), recruited from Qualtrics Panels and Exposure Labs, to examine Research Questions 2, 3, and 4.

RQ2

We conducted descriptive analysis (means and frequencies) on viewers' responses to the film.

RQ3

We had intended to use a cluster analysis method to identify meaningful audience segments and subsequently examine the differential impact of *TSD* on these segments. We attempted various cluster analysis methods, but these did not generate suitable segments for various reasons. K-means clustering only allows continuous, not categorical variables to be included, and the majority of our clustering variables of interest (e.g., parent status, campaign participation) were categorical. We used a method called two-step cluster analysis, which allows both categorical and continuous variables, but this did not produce satisfactory clusters using any combinations of the proposed clustering variables. Some solutions produced just two clusters, mainly driven by differences between the Qualtrics and Exposure Labs samples. Other solutions produced nine or more clusters, which were not easily interpretable. Finally, some solutions produced three to five clusters, but some were too small to enable comparisons.

Ultimately, instead of audience segments composed of multiple variables, we examined outcomes as a function of three individual variables of interest:

- 1. Sample source (Qualtrics vs. Exposure Labs)**
- 2. Level of campaign participation (three or more activities vs. two or fewer)**
- 3. Parent status (parent of a child under 18 vs. non-parent)**

Further, we had proposed to examine the differential impact of exposure on various subgroups within the matched PSM sample. However, this was not possible in most cases because of overlap between variables included in the propensity model and outcomes of interest. This also would have excluded Exposure Labs viewers from the RQ3 analysis, since they were not included in the matched PSM sample.

Thus, to examine RQ3, rather than the differential impact of exposure to *TSD*, we conducted one-way ANOVAs and chi-square tests to examine differences in outcomes between the different subgroups described above, among viewers only.

RQ4

Finally, we conducted one-way ANOVAs and chi-square tests to examine the relationships between potential mechanisms of impact (emotional responses, perceived character effectiveness) and key outcomes of interest among *TSD* viewers.