Final Project Milestone #2
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Data Visualization and Exploration

Age, Political Beliefs, and Voting Record

In order to understand any underlying biases in this data set, exploratory analyses were performed on the collected demographic data. Consistent with the findings of Huff and Tingley (2015), participants in our MTurk study tended to be younger, as seen in Figure 1 [1].

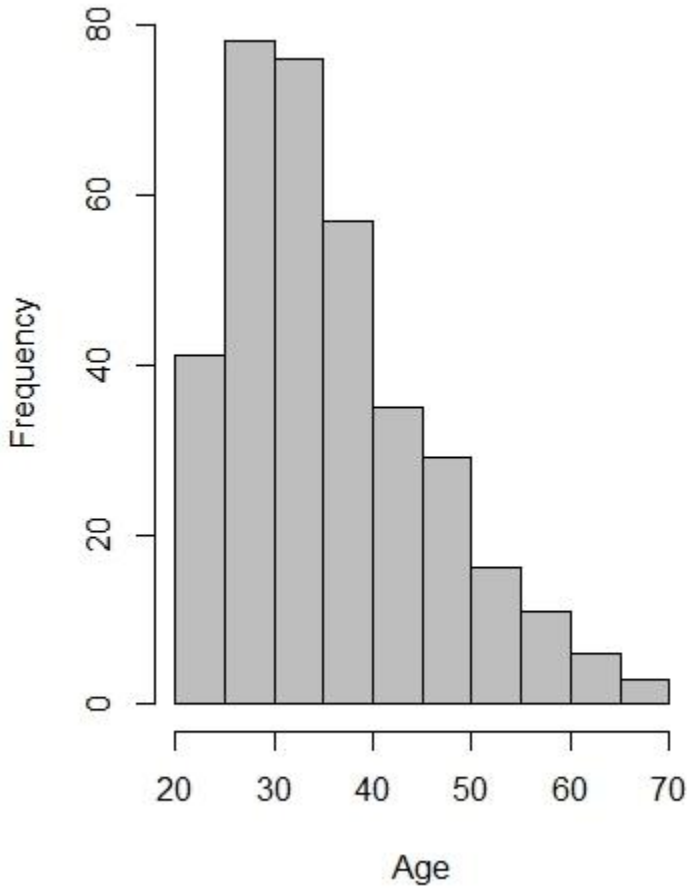

Figure 1. Histogram of MTurk study respondents reveals a skew towards the younger ages.

Furthermore, there were more respondents that identified as Democrat than Republics (244 compared to 108, respectively). These trends could be a function of the platform that was used to collect the data as seen in [1], but there is also an established trend between age and political affiliation that could explain the latter trend [2]. Figure 3 shows that the mean age of Republican participants was significantly higher than that of Democrats ($t(352) = 64.4$, $p << 0.05$) for this dataset.

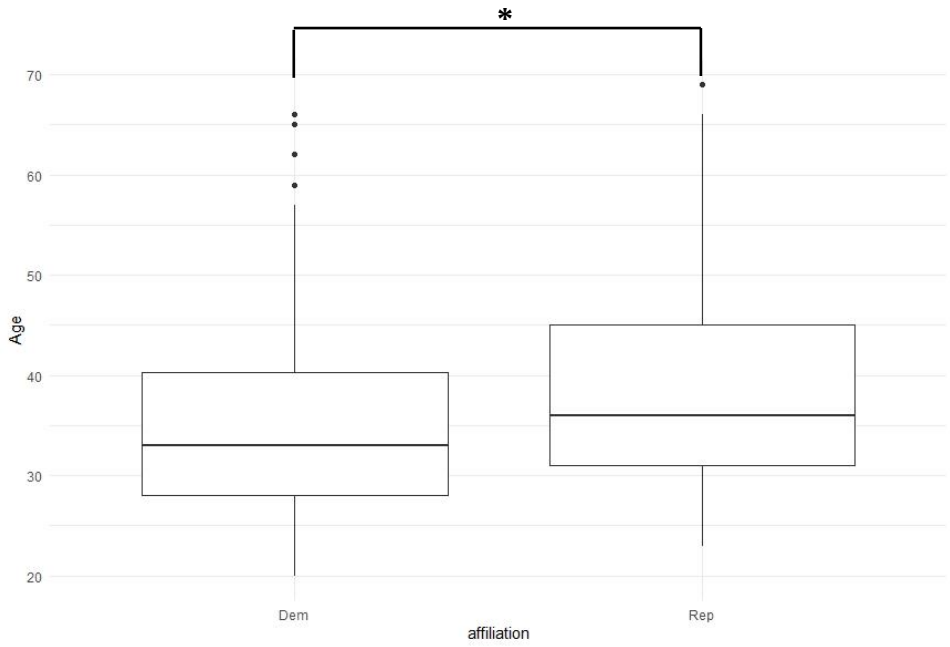

Figure 3. The mean age of Republican respondents was statistically significantly higher than the mean age of Democrat respondents. *t(352) = 64.4, p << 0.05.

Another strong predictor of party identification tends to be political ideology (x-squared = 258.65, p < 0.001). In the current political climate, a person with more conservative views is more likely to identify as a Republican while a person with more liberal views would identify as a Democrat. Figure 4 shows that 93.9% of liberals identified as Democrat, and 93.5% of conservatives identified as Republicans. While most participants party is in alignment with their political

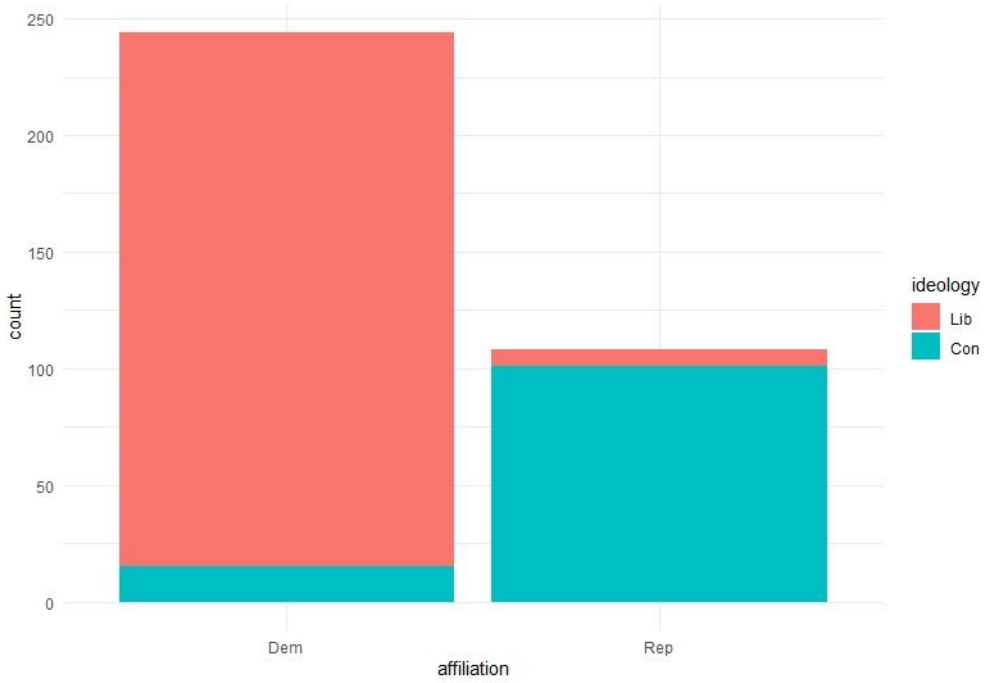

Figure 4. Liberal leaning individuals identified with the Democratic party 93.9% of the time where as conservatives identified as Republican 93.5% of the time.

philosophy, some are not. Alford and colleagues (2004, 2005) argue that evolutionary theory explains some of the natural predispositions to a certain political party, even if it is apparently contradictory to their political philosophy [3, 4]. Furthermore, there is evidence to suggest that, in such a divided two-party system, it is not uncommon for voters to display loyalty to one party, even if that party does not align with their beliefs [5, 6, 7, 8]. As for the voting record of our participants, there was a statistically significant relationship with party identification (x-squared = 293.31, p <0.0001). Consistent with prior literature, political ideology, and voting record are strong predictors of party identification for this data set.

Color Preferences

It has been shown that color preference can change depending on the occurrence of major social events, such as an election or a college football game [9, 10, 11]. However, as shown in Figure 5, there was not a significant change in preference for "Dem Blue" among Democrats (t(231) = 0.989, p = 0.324) or Republicans (t(103) = -1.321, p = 0.189).).

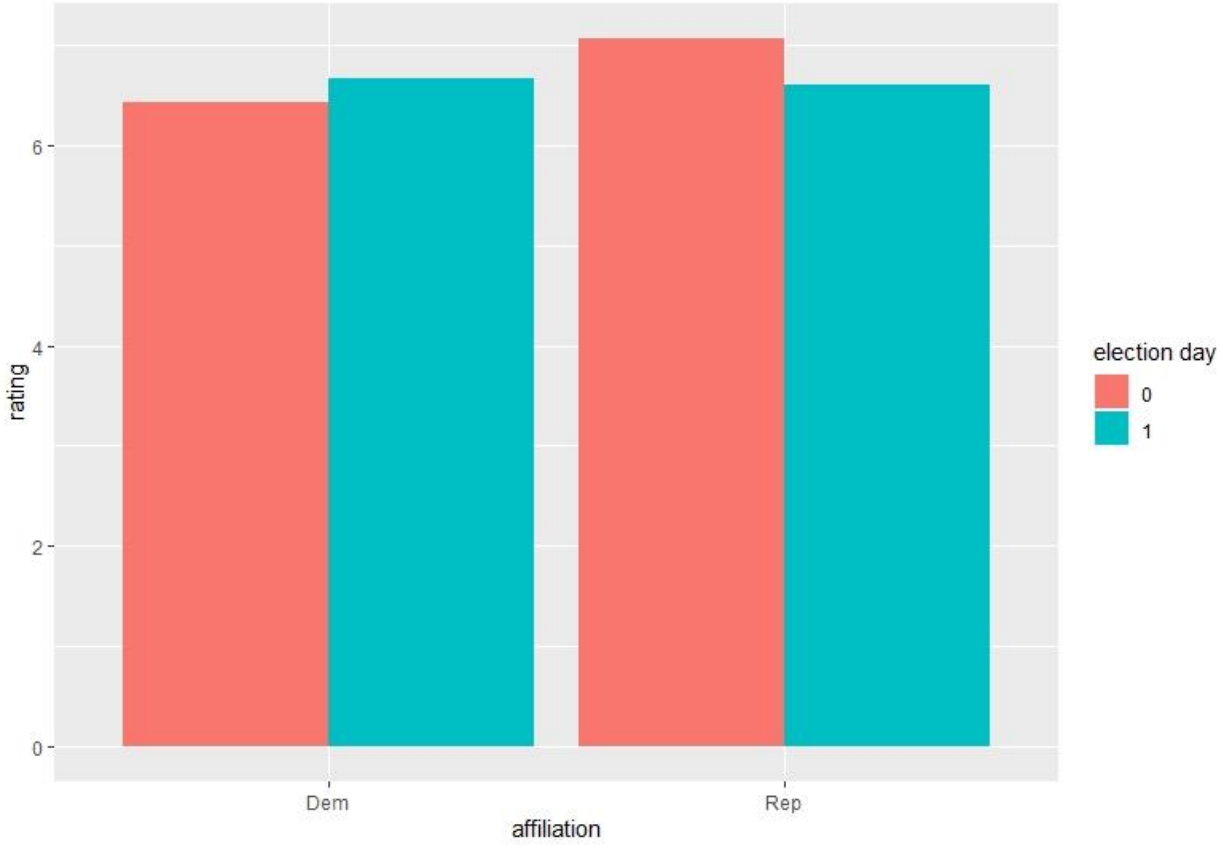

Figure 5. Mean preference for the color "Dem Blue" did not change significantly on election day for participants that identified as Democrat (t(231) = 0.989, p = 0.324) or for Republicans (t(103) = -1.321, p = 0.189).

Likewise, there was no change in preference for "Rep Red" for either party (Democrats: t(0.804) = 235.5, p = 0.423; Republicans: t(100) = -0.438, p = 0.729) , as seen in Figure 6.

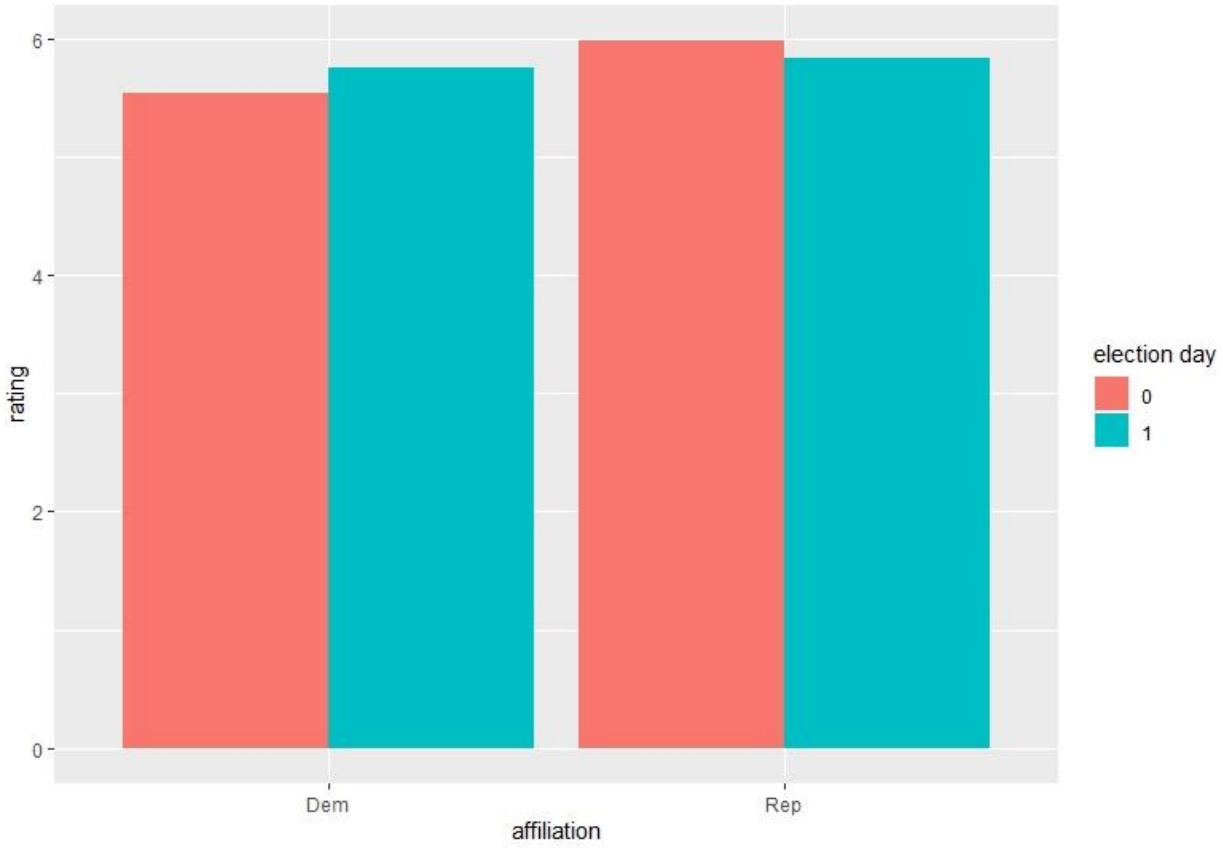

Figure 6. There was no statistically significant difference between mean color preference rating of "Rep Red" for Democrats (t(0.804) = 235.5, p = 0.423) and Republicans (t(100) = -0.438, p = 0.729) from before election day and on election day.

Furthermore, a chi square test revealed no relationship between color preference and party affiliation for neither "Dem Blue" (x-squared = 10.1, p = 0.248) nor "Rep Red" (x-squared = 3.98, p = 0.851). However, there was a statistically significant relationship between ratings of "Rep Red" and the flanker effect seen with red flankers (x-squared = 1006.3, p = 0.025). However, neither flanker effect had a statistically significant relationship to party affiliation (blue: p = 0.103, red: p = 0.396).

Initial model

Age, political philosophy, and voting record were seen to be reliable indicators of political affiliation. The relationship between "Dem Blue" ratings and the blue flanker effect approached significance so they were also included in the initial model. The coefficients for the initial model with all five predictors is shown in Table 1. The null deviance for the model was 434.04 on 351 degrees of freedom. The inclusion of the five predictors resulted in a Residual deviance of 43.916 on 346 degrees of freedom. The reduction in deviance from the null model suggests that the inclusion of the five predictors in the model improved the performance of the model. Additionally, Table 1 shows that ideology and voting record are the strongest predictors of party affiliation, and

a regularizer can be incorporated in future iterations in order to prevent these two predictors from dominating the model. Additionally, the class imbalance between Democrats and Republicans should be accounted for in future models.

Table 1. Coefficients for logistic regression that used five predictors (age, political philosophy, voting record, "Dem Blue" rating, and blue flanker effect) to classify party identification.

	Estimate	**Std. Error**	**Z Value**	**Pr(> |z|)**
Intercept	0.7067	2.385	0.296	0.767
Age	-0.0122	0.04802	-0.254	0.799
Ideology	-21.94	266.4	-0.008	0.993
Voting Record	236.4	266.4	0.009	0.993
Dem Blue	-0.2321	0.2718	-0.854	0.393
Blue FE	0.001764	0.00965	0.183	0.855

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