

Durable attitude change using active processing: A longitudinal study on the effects of AI
dialogue

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

Jordan Sheen is the primary author of this thesis who also largely developed the research idea, methodology, and analyzed the data.

Dr. Samuel G. B. Johnson supervised and guided the research project by aiding in its conception, methodology, analysis, and funding.

Jaxin Lu created an interface where participants can seamlessly engage with an AI in the middle of a survey.

Hadley Perkins cleaned and organized participant responses and aided in data analysis.

Aimee Laundry cleaned and coded data

Abstract

This study investigates whether AI-driven conversations can produce durable attitude change toward controversial policies, specifically legal kidney markets and free trade. In Study 1, participants interacted with a GPT-3.5 chatbot using utilitarian, deontological, emotional, and narrative arguments. Attitudes were measured immediately, one week, seven weeks, and eighteen weeks after the intervention. All strategies shifted attitudes in the short term, with most changes remaining durable after one week. However, only narrative arguments remained effective at seven weeks, with aggregate change persisting at eighteen weeks. Neither argument type nor decision-making style interacted to affect persuasiveness. Study 2 found in-group/out-group messaging effective but equivalent. Vivid memory of AI interactions predicted positive attitude change, while accurate memory of the argument had no effect. These findings suggest that conversational AI can produce long-term attitude change through active cognitive processing, demonstrating its potential as a scalable tool for shifting public attitudes on complex issues through interactive engagement.

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Introduction

Anyone in the persuasion business knows that changing minds is hard. What is even harder is changing someone's beliefs over a long span of time. Politicians (Levitt, 1994), advertisers (Bird, 2002; Landes & Rosenfield, 1994), and governments (Lynam et al., 1999) all spend large sums of money attempting to improve their messaging in hopes of producing lasting attitude change, often with little to no effect. But changing minds is not impossible. People convert religions, adopt new political positions, sometimes even sacrifice themselves for their newly held beliefs. From Martin Luther's treatises persuading the masses to abandon Catholicism to Vladimir Lenin who motivated his countrymen to fight and die in the name of socialism during the Russian civil war. Even though people often struggle to make friends or loved ones align with their views, the long sweep of history makes plain that social views have evolved dramatically over past decades, to say nothing of centuries. Ideas seem to matter, and they matter because they change individual minds.

But arguably, the research literature both overstates and understates the ubiquity of persuasion. Most studies have demonstrated immediate attitude change in lab studies, typically involving participants rating their attitudes about a topic before and immediately after reading some arguments (Oschatz & Marker, 2020). But this easy persuasion maps poorly to the real world where attitude change rarely seems to stick. While traditional approaches to persuasion, such as direct argumentation and media exposure, have demonstrated short-term effects, there has been a notable lack of research focused on sustaining these changes over weeks or months, and the research that does exist typically finds little to no longer-term attitude change (Hill et al., 2013).

We propose that persuasion is typically not sustained in past studies because participants are not engaging in sufficient elaboration. It is proposed that persuasion can lead to both short-term and long-term changes in attitudes, depending largely on how the message is processed. Short-term persuasion often results from superficial cues, such as the attractiveness of the communicator (Chaiken, 1979) or emotional appeals (Nabi, 2002), which facilitate rapid but unstable shifts in opinion. However, without deeper cognitive engagement, these attitude changes are thought to be vulnerable to decay over time (Petty & Cacioppo, 1986). In contrast, long-term persuasion is thought to arise when individuals engage in systematic, effortful processing of information, as described by the central route of the Elaboration Likelihood Model (Petty & Cacioppo, 1986; Petty et al., 1995). Factors such as high personal relevance (Petty & Cacioppo, 1979), repeated message exposure (Cacioppo & Petty, 1979), and the quality and strength of arguments (Tormala & Petty, 2004) have all been shown to enhance message durability. When attitudes are formed through elaborative processing, they tend to be more persistent, more predictive of behavior, and more resistant to counter-persuasion (Krosnick & Petty, 1995). Thus, understanding the cognitive routes through which persuasion operates is crucial for designing messages that produce lasting impact. To further explore these processes and examine whether they generalize beyond argument style to other influential factors, we conducted a second study focusing on the role of social identity cues, topic familiarity, and memory vividness in AI-mediated persuasion. This follow-up study also allowed us to test whether the patterns observed in Study 1 extend to a broader range of persuasive contexts.

We argue that *active processing* through conversation will trigger elaboration enough to create sustained attitude change. Active processing refers to the deliberate effort to engage with and manipulate information through cognitive strategies such as rehearsal, elaboration, and

organization (Mayer, 2009). It also leads to better memory retention and learning (Markant et al., 2016). Active processing has been shown to improve classroom performance (Gingerich et al., 2014), support more accurate risk assessments (Natter & Berry, 2005), and even reduce Islamophobia through conversations designed to promote active processing (Benier et al., 2024). Research also shows that conversation, as opposed to passive information consumption, serves as an effective facilitator of active processing (Bouton & Garth, 1983). Dialogue requires individuals to articulate their thoughts, respond to counterarguments, and refine their reasoning in real-time, all of which foster deeper cognitive engagement (Chi, 2009). Unlike reading or listening passively, conversation demands immediate feedback and adaptive thinking, encouraging individuals to evaluate and integrate new information.

Prior work has likely shied away from testing attitude change in conversational contexts due to both the demands on the experimenter to generate arguments satisfying the experimental protocol in real time and the seemingly insuperable challenge of providing standardization and experimental control while maintaining a natural conversation. We solve both problems by harnessing recent innovations in AI chatbots, programming the chatbots to provide different types of arguments. There is already evidence that people's attitudes toward uniquely held conspiracy beliefs can shift as a result of conversing with AI (Costello et al., 2024), and a meta-analysis shows that AI can be as persuasive as human interlocutors (Huang & Wang, 2023). However, the studies included in the meta-analysis did not feature real two-way interactions; most studies used vignettes or algorithms that were framed as AI output, or they employed one-way interactions where participants had to evaluate the genuine output of an AI such as art, or messaging.

For our context, we chose a topic where there is a strong divergence between expert and public opinion concerning legalized kidney markets: whereas around 80% of economists support the idea (Whaples, 2009), only 44% of the public does (Leider & Roth, 2010). Experts believe that donors should be compensated for their kidneys because it would save between 5,000-10,000 lives and \$58 billion per year in the US (Held et al., 2016). We chose this as our test case because the topic lends itself to several types of arguments and because, from a research ethics perspective, it is preferable to shift attitudes toward an expert consensus. Thus, we hypothesize that people will be more in favour of legal kidney markets both in the short-term and long-term after they engage with an AI chatbot on the subject.

A key component of short-term persuasion is the style of argumentation employed. Previous research has explored a range of persuasive strategies, including utilitarian appeals (focused on maximizing overall well-being), deontological arguments (emphasizing moral duties), emotional appeals, and narrative-based persuasion. While each approach has demonstrated effectiveness in specific contexts, their relative impact on long-term attitude change remains underexplored. In advertising, utilitarian persuasion is found to be more effective when promoting functional products compared to those meant to enhance emotional value (Johar & Sirgy, 1991). However, people are more open to eating insects for environmental reasons when told they are tasty rather than simply healthy, suggesting emotional framing is more effective than utilitarian appeals in some cases (Berger et al., 2018). Additionally, religious individuals are more likely to be persuaded by deontological arguments over utilitarian ones in the context of climate change (DePalma, 2024). Deontological reasoning has also been shown to outperform consequentialist (utilitarian), virtue ethics, ethical egoism, and imperative-based arguments in motivating charitable donations (Balafoutas & Rezaei, 2022).

More intuitively appealing styles such as emotional persuasion have also proven effective in the short term. Emotional appeals outperform rational ones in promoting Tai Chi (Adler et al., 2016), influencing voting behavior (Wirz, 2018), and in certain advertising contexts (Zhang et al., 2014). However, emotional arguments can have differential effects based on the audience; for instance, arguments eliciting sympathy led women to donate more than men, despite an overall increase in donations after exposure to emotional content (Kemp et al., 2013). Narrative arguments, meanwhile, tend to be more persuasive when the subject of the story is similar to the listener (Ooms et al., 2019; Hoeken et al., 2016), and there is evidence that narrative-based persuasion can result in more sustained attitude change over time (Oschatz & Marker, 2020). The above leads to the hypothesis that intuitive arguments will be more persuasive than rational ones in the short-term.

A final possibility is that different types of arguments would appeal toward different types of people. Individual differences in cognitive processing styles, such as the tendency to rely on rational (utilitarian and deontological) versus intuitive (emotional and narrative) thinking, may also matter for the effectiveness of different argument types. There is evidence that these thinking styles already interact with framing effects within judgment and decision making (Shiloh et al., 2002). The type of cognitive style one has also interacts with how certain someone is about their attitude and whether the message matches their cognitive style (Clarkson et al., 2011). This study examines these dynamics by systematically varying the argumentation style used by an AI chatbot during persuasive dialogues. The hypotheses are as follows:

H1: All persuasive styles will lead to more favorable attitude change directly after engaging with the AI.

H2: All persuasive styles will lead to more favorable attitude change one week after engaging with the AI.

H3: Arguments that emphasize logic will be more persuasive when they are emphasizing deontology than when they are emphasizing utilitarianism.

H4: Intuitive arguments will be more persuasive than logical ones.

H5: Rational (vs intuitive) arguments will be more effective for individuals with more rational (vs intuitive) processing styles.

Study 1

Methods

Participants

Our sample originally comprised 667 participants, of which 35 were excluded because they did not engage with the chatbot properly in ways such as typing gibberish, one-word answers, or pasting large amounts of unrelated text. The exclusions were the result of a research assistant coding each response to ensure its quality. The sample consisted of Americans recruited through MTurk between the ages of 19 and 80 ($M = 41.1$, $SD = 12.2$). Our participants were 44% female, 55% male, and 1% preferred not to answer. As expected, there was some sample attrition over time: The final sample at the initial time point comprised 632 participants; after one week, 499 participants; seven weeks later, 449 participants; and 18 weeks later, 350 participants.

Materials and Procedure

Initial timepoint. In this preregistered study, participants first rated their initial attitude on a 9-point Likert scale on the question “What is your attitude towards the idea of a society where individuals can buy and sell kidneys legally?” from 1 (“Completely against”) to 9 (“Completely for”).

Participants were then randomly assigned to one of five conditions. In the control condition, participants were told “Please write a short paragraph explaining your stance towards legalizing kidney markets and why you hold that stance. (keep your answers between 50-200 words).” This active control was included to rule out the possibility that measuring the same attitude twice or mere reflection (in the absence of a persuasive message) could result in measured attitude change.

Participants in the four experimental conditions were told “Type a brief sentence that says if you are for, against, or have mixed feelings on whether it should be legal for people to buy and sell kidneys. You will then be presented with an argument and be given three opportunities to reply with the interface.” Participants then interacted with an AI chatbot (GPT 3.5) through an API that was integrated into the webpage of the experiment. Across the four conditions, the chatbot’s responses would attempt to persuade the participant through either utilitarian, deontological, emotional, or narrative arguments. The chatbot was programmed so that each message did not exceed 100 words. The system prompts for each condition are given in Appendix A. Both the control condition and the experimental conditions took around 4 minutes to complete out of the total 6 minutes that the study took to finish.

To provide a brief filler task as well as elicit individual differences, participants next completed a short Big Five personality measure (Rammstedt et al., 2013) and the rational and intuitive decision styles scale (Hamilton & Mohammed, 2016).

After the individual difference measures, participants re-rated their attitudes towards legal kidney markets using the same wording and scale as the initial rating.

Next, participants completed a series of manipulation check questions to assess if the participants felt that the AI argued according their condition. These questions included “Did the AI give responses that argued about the good of society?”, “Did the AI give responses that argued about the good of the individual?”, “Did the AI give responses that used emotion?”, “Did the AI give responses that told a story?”, “Did you think that the AI was trying to use rational arguments?” “Did you feel that the AI was trying to appeal to your intuition?” Each question was rated on a 9-point Likert scale from 1 (“Strongly Disagree) to 9 (Strongly Agree).

Finally, we collected demographic data including age, income, sex, education, and political orientation.

Second timepoint. One week later, participants were again asked the same attitude question regarding legal kidney markets. Next, participants in the experimental groups were asked several questions to probe potential boundary conditions on the AI's persuasiveness: Did you feel as though the AI was arguing with you? Did you feel as though the AI was interested in a dialogue with you? Did the statements from the AI surprise you? Did you feel as though the AI was telling the truth? Did you feel as though the AI was trying to persuade you? Did you feel as though the AI was trying to manipulate you? These questions were answered on a 9-point Likert scale from 1 ("Not at all") to 9 ("Completely").

Third and fourth timepoints. Two other follow-ups were conducted 7 weeks after the initial study and 18 weeks after the initial study. These comprised only the single-item attitude question regarding legalized kidney markets, identical to the one used at the other timepoints.

Results

Before and after argument

Every argument type was persuasive in the short term. A mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, deontological, utilitarian, emotional, narrative) as the between-subject factor. There was a significant main effect of Time, $F(1, 629) = 61.11, p < .001$, partial $\eta^2 = 0.09$, and no significant main effect of Condition, $F(4, 629) = 1.47, p = .21$, partial $\eta^2 = 0.01$. Additionally, the interaction between Time and Condition was significant, $F(4, 629) = 6.69, p < .001$, partial $\eta^2 = 0.04$.

To identify what arguments were persuasive, we ran t-tests that reveal there was a significant difference in attitudes when using utilitarian arguments $t(129) = 5.39, p < .001, d = 0.47$ before participants engaged with the AI and after. There was also a significant difference with deontological arguments $t(121) = 3.09, p = .003, d = 0.28$, emotional arguments $t(114) = 2.44, p = .016, d = .23$, and narrative arguments $t(127) = 5.89, p < .001$. There was no significant difference in the control condition $t(138) = 0.43, p = .67, d = 0.04$ when comparing before and after participants wrote their thoughts. These results lend evidence to our first hypothesis that all arguments will work in the short-term. Means of each condition at each timepoint can be found in Figure 1.

To compare the magnitude of change across conditions, a one-way ANOVA was conducted on change scores (After – Before), revealing a significant effect of condition, $F(4, 629) = 6.67, p < .001$, partial $\eta^2 = .04$. When comparing argumentative conditions to each other, we did not find evidence to support hypotheses H3 and H4, as one type of argument did not seem to fare better than other types of arguments. We found no significant difference between the rate someone was persuaded between rational ($M = 0.55, SD = 1.47$) and intuitive ($M = 0.58, SD = 1.57$) arguments $t(490) = 0.26, p = .80, d = 0.02$. There was also no significant difference between the rate someone was persuaded between utilitarian ($M = 0.65, SD = 1.42$) and deontological ($M = 0.45, SD = 1.53$) arguments $t(249) = 1.21, p = .23, d = 0.15$.

We did not find evidence supporting H5 in that a participant's decision style was seemingly unrelated to what kinds of arguments they are most receptive to. To analyze this, a Pearson correlation was conducted to examine the relationship between scores in intuitive decision style and attitude change from intuitive-like arguments. The analysis revealed no significant correlation between the two variables, $r(239) = -.04, p = .53$, suggesting that people

with an intuitive decision style were not more receptive to intuitive-like arguments. An additional Pearson correlation was conducted to examine the relationship between scores on rational decision style and attitude change from rational-like arguments. The analysis revealed no significant correlation between the two variables, $r(250) = .10, p = .11$, suggesting that people with a rational decision style were not more receptive to rational-like arguments.

One week later

Each persuasive style, except emotional, showed a significant effect when each condition was analyzed individually. A mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, deontological, utilitarian, emotional, narrative) as the between-subject factor. There was a significant main effect of Time, $F(1, 496) = 28.03, p < .001$, partial $\eta^2 = 0.05$, and no significant main effect of Condition, $F(4, 496) = 1.50, p = .33$, partial $\eta^2 = 0.01$. Additionally, the interaction between Time and Condition was not significant, $F(4, 496) = 1.88, p = .11$, partial $\eta^2 = 0.01$. T-tests were conducted to compare attitudes towards legal kidney markets before and one week after participants engaged with the AI that was modeled to argue with the participant that kidney markets should be legal through either utilitarian, deontological, emotional, or narrative arguments.

There was a significant difference in attitudes using utilitarian arguments $t(100) = 3.69, p < .001, d = 0.37$ before participants engaged with the AI and one week after. There was also a significant difference in attitudes using deontological arguments $t(95) = 2.65, p = .009, d = 0.27$, and narrative arguments $t(99) = 3.40, p = .001, d = 0.34$. However, there was no significant difference found for emotional arguments $t(94) = 1.63, p = .11, d = 0.17$. As expected, we found no difference in the control condition $t(110) = 0.33, p = .738, d = 0.03$ when comparing before

and after participants wrote their thoughts. These results partially support the hypothesis that all arguments will be persuasive one week later.

Seven weeks later

We found that only narrative arguments were significantly different than baseline seven weeks later while the other argument types were not. A mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, deontological, utilitarian, emotional, narrative) as the between-subject factor. There was a significant main effect of Time, $F(1, 452) = 26.08, p = .002$, partial $\eta^2 = 0.02$, and no significant main effect of Condition, $F(4, 452) = 1.50, p = .32$, partial $\eta^2 = 0.01$. Additionally, the interaction between Time and Condition was not significant, $F(4, 452) = 0.45, p = .77$, partial $\eta^2 < 0.01$. T-tests were conducted to compare attitudes towards legal kidney markets before and seven weeks after participants engaged with the AI that was modeled to argue with the participant that kidney markets should be legal through either utilitarian, deontological, emotional, or narrative arguments.

There was no significant difference in attitudes using utilitarian arguments $t(87) = 1.75, p = .08, d = 0.19$ before participants engaged with the AI and seven weeks after. There was also no significant difference with deontological arguments $t(90) = 1.32, p = .19, d = 0.14$, and emotional arguments $t(84) = 1.62, p = .11, d = 0.18$. Narrative arguments, however, did result in a significant difference $t(88) = 2.04, p = .045, d = 0.22$ when comparing attitudes before engaging with the AI and seven weeks after. There were no significant differences in the control condition $t(102) = 0.36, p = .72, d = 0.04$ when comparing before participants wrote their thoughts and after. These results partially support our hypothesis that all argument types would be persuasive seven weeks after engaging with the AI. However, when we combine all the arguments, we see

that they are significantly different before and seven weeks after the initial argument. These results partially support the hypothesis that all arguments will be persuasive seven weeks later.

Eighteen weeks later

Eighteen weeks later, all combined arguments were found to change attitudes. A t-test was conducted to compare attitudes towards legal kidney markets before and 18 weeks after participants engaged with the AI. There was a significant difference in attitudes $t(266) = 2.53, p = .012, d = 0.16$ before ($M = 3.95, SD = 2.68$) and after ($M = 4.27, SD = 2.70$) the arguments. No significant difference was found in the control group $t(84) = 0.22, p = .830, d = 0.02$ before ($M = 3.61, SD = 2.44$) and after ($M = 3.57, SD = 2.65$) the study. These results support our hypothesis that favourability will be higher 18 weeks after engaging with the AI than before engaging with it.

To investigate how each condition did, a mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, deontological, utilitarian, emotional, narrative) as the between-subject factor. There was a significant main effect of Time, $F(1, 347) = 5.20, p = .023$, partial $\eta^2 = 0.02$, and no significant main effect of Condition, $F(4, 347) = 1.60, p = .17$, partial $\eta^2 = 0.02$. Additionally, the interaction between Time and Condition was not significant, $F(4, 347) = 0.93, p = .45$, partial $\eta^2 = 0.01$. T-tests were conducted to compare attitudes towards legal kidney markets before and eighteen weeks after participants engaged with the AI that was modeled to argue with the participant that kidney markets should be legal through either utilitarian, deontological, emotional, or narrative arguments.

There was no significant difference in attitudes using utilitarian arguments $t(59) = 1.91, p = .06, d = 0.25$ before participants engaged with the AI and eighteen weeks after. There was also

no significant difference with deontological arguments $t(69) = 0.68, p = .50, d = 0.08$, and emotional arguments $t(68) = 0.62, p = .54, d = 0.07$. Narrative arguments also did not result in a significant difference $t(67) = 1.95, p = .055, d = 0.24$.

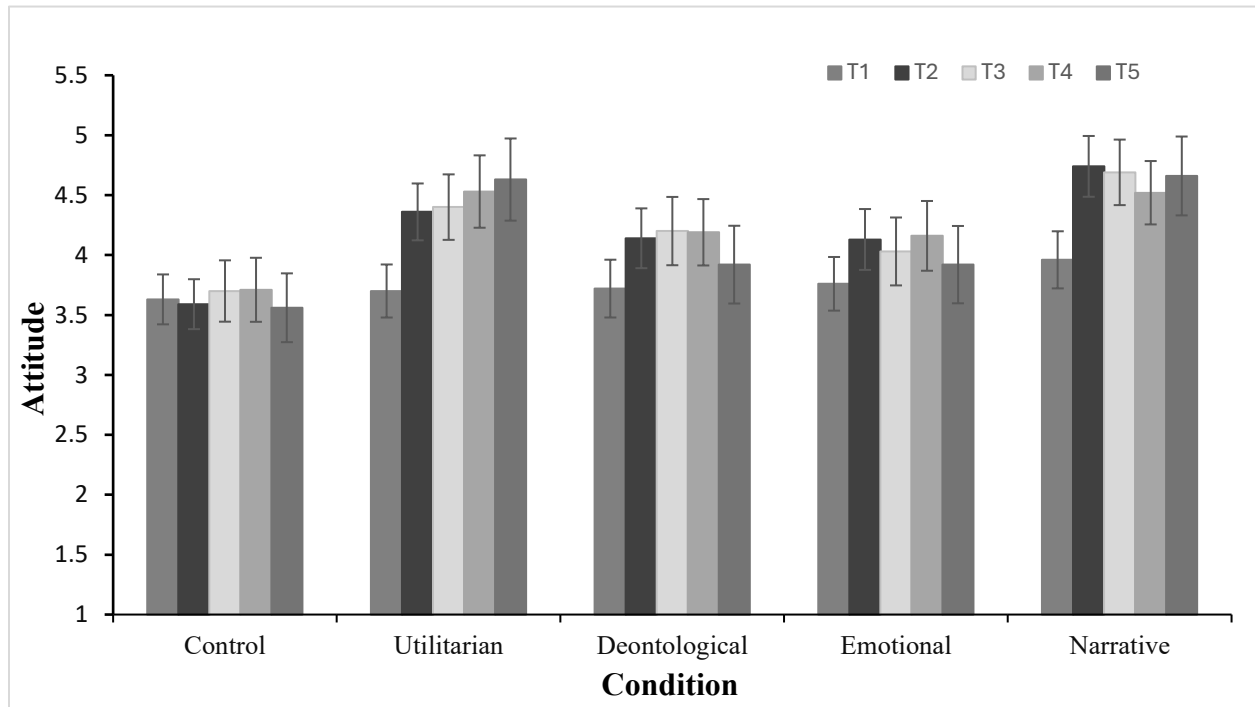
Attitude change at each timepoint

Attitude change of experimental conditions and control conditions we compared to see the difference between the two. An ANOVA was conducted with attitude change (mean attitude of timepoint – initial attitude) and two fixed factors of Timepoint (Initially, 1 week later, 7 weeks later, 18 weeks later) and Condition (experimental, control). There was no significant main effect of Timepoint, $F(3, 1936) = 0.30, p = .82$, partial $\eta^2 < 0.01$, and a significant main effect of Condition, $F(1, 1936) = 18.26, p < .001$, partial $\eta^2 = 0.01$. The interaction between Timepoint and Condition was not significant, $F(3, 1936) = 0.42, p = .74$, partial $\eta^2 < 0.01$. T-tests were conducted to compare look at attitude change at each point. The mean attitude difference between each timepoint and baseline can be found in Figure 2.

There was a significant difference in attitude change at the initial timepoint $t(632) = 4.42, p < .001, d = 0.42$ between the experimental and control group. There was also a significant difference one week later $t(498) = 2.44, p = .014, d = 0.26$. However, there was no difference between experimental and control seven weeks later $t(454) = 1.29, p = .20, d = 0.14$, and eighteen weeks later $t(349) = 1.44, p = .15, d = 0.13$.

Figure 1

Attitude at each timepoint for Study 1



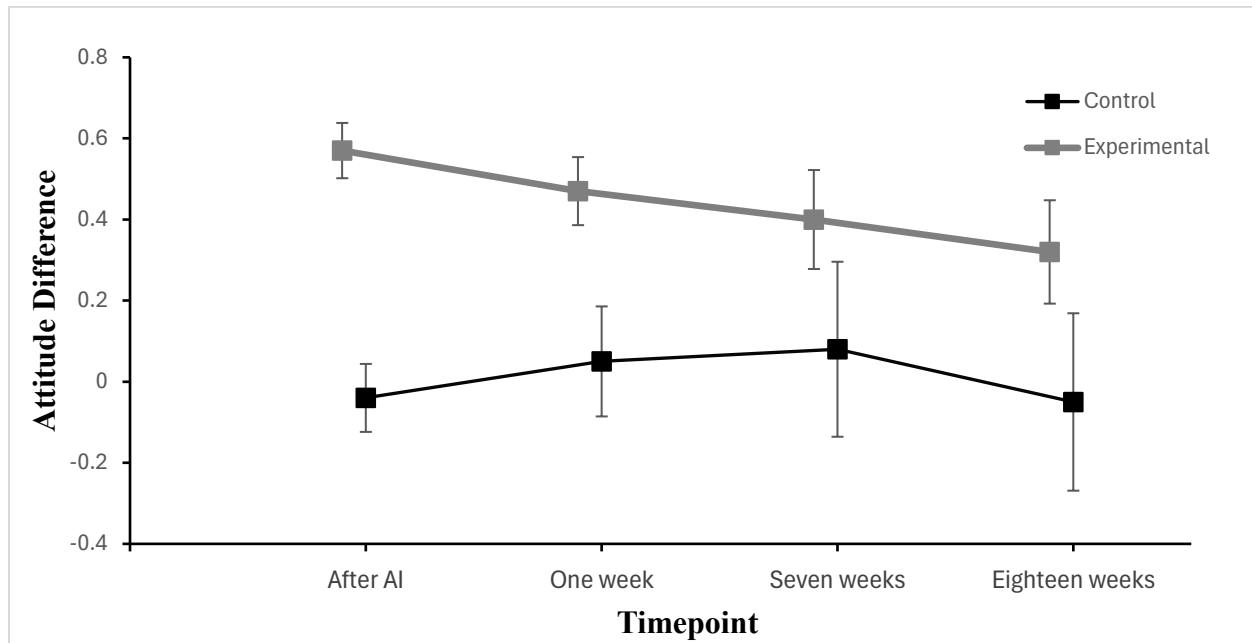
Note. This figure shows average attitudes towards kidney markets at each time-point for each condition on a Likert scale ranging from 1 (Not at all favorable) to 9 (Completely favorable).

Timepoints T1-T5 represent initial attitude, attitude directly after engaging with the AI, one week after engaging with the AI, seven weeks after engaging with the AI, and eighteen weeks after.

Error bars represent standard error.

Figure 2

Difference in attitude at each timepoint and initial attitude for Study 1



Note. Each point represents the average attitude difference between baseline measurement and attitude measured at each timepoint. Error bars represent standard error.

Study 2

We decided to run an additional study because we did not see any difference in argument style, and we wanted to see if our method still resulted in sustained attitude change for different topics. To do this, we examined how social identity cues interact with persuasive messaging. Drawing from social identity theory (Tajfel & Turner, 1986) and prior work on motivated reasoning (Kunda, 1990), we hypothesized that persuasion would be more effective when it challenged partisan expectations rather than aligned with them. Specifically, we predicted that participants would be more persuaded when the opposing political party (i.e., their out-group) appeared to *agree* with their own position, e.g., a Democrat hearing that Republicans oppose legal kidney markets, compared to when their in-group supported the position they initially disagreed with (H6). To test this, we embedded political identity cues into the chatbot's dialogue, framing the argument as originating from either a Democrat or Republican perspective. Again, we hypothesized that all argument types would significantly change attitudes, both in the short term and long term (H7).

We also added a second topic of free trade to our original kidney markets topic. Unlike kidney markets, which most participants were unlikely to have previously considered, we expected participants to hold stronger and more thought-out attitudes about free trade. Based on research showing that pre-existing attitudes reduce susceptibility to persuasion (Petty & Cacioppo, 1979), we predicted that kidney markets would be easier to shift opinions on than free trade (H8). This allowed us to test how attitude strength and familiarity moderate the effectiveness of AI-mediated persuasion. By comparing shifts in attitude across these two topics, we aimed to isolate how entrenched beliefs constrain the potential for persuasion, even when arguments are tailored and presented interactively.

Finally, we were interested in whether memory of the AI interaction itself played a role in the persistence of persuasion. Research in educational psychology suggests that the vividness of learning experiences is linked to better learning, performance, and retention (Cherney, 2008). Thus, we hypothesized that the more vividly participants said they remembered their conversation with the AI, the more likely they would show durable attitude change (H9). We also hypothesize that the more accurately a participant remembers a conversation the more likely they will be persuaded (H10). In other words, attitude durability may be tied not only to the content or logic of the argument, but also to the psychological salience of the interaction that delivered it.

Methods

Participants

Our sample originally comprised 900 participants, of which 33 were excluded because they did not engage with the chatbot properly in ways such as typing gibberish, one-word answers, or entering large amounts of unrelated text. The exclusions were the result of a research assistant coding each response to ensure its quality. The sample consisted of Americans recruited through MTurk, of which were 52% female, 47% male, and less than 1% preferred not to answer. Respondents also consisted of 60% Democrats and 40% Republicans. The final sample at the initial time point comprised 867 participants and 678 participants after one week.

Materials and Procedure

Initial timepoint. In this preregistered study, participants were first asked about how Democratic or Republican they were on fiscal and social issues, and then asked “What is your opinion on people who vote for Democrats?” and ask the same question towards Republicans. Participants were then asked what their overall political orientation is. All questions were on a 6-

point Likert scale with 1 meaning strongly Democratic or unfavorable and 6 meaning strongly Republican or favorable, depending on the question.

The participant was then asked to rate their favourability either toward the phrase “The United States should make it legal for people to buy and sell their kidneys if they wish.” Or “The United States should adopt free trade agreements with other countries.” with a note explaining “A free trade agreement is a pact between two or more nations to reduce barriers to imports and exports among them. Under a free trade policy, goods and services can be bought and sold across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.” These questions were answered on a 9-point Likert scale with 1 being “Fully disagree” and 9 being “Fully agree.” They were then asked “How much have you thought about the ability to legally buy or sell kidneys before?” or “How much have you thought about free trade agreements before?” Again, on a 9-point Likert scale with 1 being “A little” and 9 being “A lot.”

Participants were then assigned to a Democratic or Republican condition depending on how they answered the overall political orientation question. Within each condition, participants were randomly assigned to be in a control condition, a condition where they speak with a chatbot that states why people from the participant’s political orientation are in favour of the topic, or a condition where they speak with a chatbot that states why people opposite of the participant’s political orientation are against the topic.

In the control condition, participants were either told “Please write a short paragraph explaining your stance on whether the United States should make it legal for people to buy and sell their kidneys and why you hold that stance.” or “Please write a short paragraph explaining

your stance on whether the United States should adopt free trade agreements with other countries and why you hold that stance

Participants in the experimental conditions were told “Type a brief sentence that says if you are for, against, or have mixed feelings on whether the United States should make it legal for people to buy and sell kidneys. You will then be presented with an argument and be given three opportunities to reply with the interface.” Participants then interacted with an AI chatbot (GPT-4o) through an API that was integrated into the webpage of the experiment. Across the conditions, the chatbot’s responses would attempt to persuade the participant through either saying why their party has a favorable attitude towards the topic or why the competing party has an unfavorable attitude towards the topic. The chatbot was programmed so that each message did not exceed 100 words. The system prompts for each condition are given in Appendix B. Both the control condition and the experimental conditions took around 4 minutes to complete out of the total 6 minutes that the study took to finish.

To provide a brief filler task as well as elicit individual differences, participants next completed a Need for Cognition measure (Lins de Holanda Coelho et al., 2020).

After the individual difference measures, participants re-rated their attitudes towards the topics using the same wording and scale as the initial rating. Finally, participants rated the statement "Writing about the ability to legally buy or sell kidneys made you..." on a 5-point Likert scale with "1 = Much more Democratic, 3 = No change, 5 = Much more Republican" and we asked for the participant's sex.

Second time point. One week later, participants were again asked the same attitude question regarding legal kidney markets or free trade. Participants were then told “You

completed the first part of this study a week ago where you had written *about the ability to legally buy or sell kidneys* (or *about free trade agreements* in the other condition). Please answer the following questions trying to remember when you had to write about *the ability to legally buy or sell kidneys* (or *free trade agreements*).” Participants then filled out questions from the Autobiographical Memory Characteristics Questionnaire (Boyacioglu & Akfirat, 2015) to assess how vivid, accurate, accessible, coherent, and emotionally intense their memory was of the AI interaction a week prior. We then ask the participant “How favorable were you **last week** towards the idea that the United States should make it legal for people to buy and sell their kidneys if they wish **before** you wrote about it?” and then “How favorable were you **last week** towards the idea that the United States should make it legal for people to buy and sell their kidneys if they wish **directly after** you wrote about it?” The same questions were asked with modifications to the free trade group. These questions were answered on a 9-point Likert scale with 1 being “Fully disagree” and 9 being “Fully agree.” They were then presented with a text box and told “Please write a **specific** argument that was made to you last week concerning **kidney markets** (or free trade).” And to limit their response to 10-50 words. These answers were then coded to reflect the degree to which the participant remembered the initial AI dialogue. Participants were then asked about political orientation again and the study ends with the question “Generally speaking, what are your views on AI?” On a 5-point Likert scale with 1 being “Very negative” and 5 being “Very Positive.”

Results

Before and after argument

Every argument type was persuasive in the short term. A mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, in-group,

out-group) and *Topic* (kidney markets, free trade) as the between-subjects factors. There was a significant main effect of Time, $F(1, 861) = 27.59, p < .001$, partial $\eta^2 = 0.03$, no significant main effect of Condition, $F(2, 861) = 1.46, p = .25$, partial $\eta^2 < 0.01$, and a significant main effect of Topic, $F(1, 861) = 198.6, p < .001$, partial $\eta^2 = 0.19$. Additionally, the interaction between Time and Condition was significant, $F(2, 861) = 14.57, p < .001$, partial $\eta^2 = 0.03$, but not Time and Topic, $F(1, 861) = 0.06, p = .80$, partial $\eta^2 < 0.01$, or Condition and Topic $F(2, 861) = 0.13, p = .88$, partial $\eta^2 < 0.01$. There was also no three-way interaction between Time, Condition, and Topic, $F(2, 861) = 2.39, p = .09$, partial $\eta^2 = 0.01$.

To identify what arguments were persuasive, we ran t-tests that revealed there was a significant positive difference in attitudes when using in-group arguments $t(283) = 5.58, p < .001, d = 0.33$ before participants engaged with the AI and after. There was also a significant difference with out-group arguments $t(288) = 3.49, p < .001, d = 0.21$. There was no significant difference in the control condition $t(293) = -1.47, p = .16, d = 0.08$ when comparing before and after participants wrote their thoughts. When looking at how people's attitudes changed within each topic, we see that people positively changed their attitudes towards legal kidney markets $t(293) = 4.62, p < .001, d = 0.27$, and free trade $t(278) = 4.51, p < .001, d = 0.27$, after they engaged with the chatbot. These findings support the hypothesis that all argument conditions and topics will be persuasive in the short term.

When comparing arguments, we see that people were not more persuaded by one argument type over the other $t(571) = 1.70, p = .09, d = 0.14$, which doesn't support our hypothesis that out-group arguments would be more persuasive than in-group arguments. We see that people were not more persuaded by one topic over the other $t(571) = .52, p = .59, d = 0.05$,

which doesn't support our hypothesis that arguments towards kidney market would be more persuasive than arguments towards free trade.

One week later

Every argument type was persuasive in the long-term. A mixed-design ANOVA was conducted with *Time* (before, after) as the within-subject factor and *Condition* (control, in-group, out-group) and *Topic* (kidney markets, free trade) as the between-subjects factors. There was a significant main effect of Time, $F(1, 672) = 26.26, p < .001$, partial $\eta^2 = 0.04$, no significant main effect of Condition, $F(2, 672) = 0.46, p = .63$, partial $\eta^2 < 0.01$, and a significant main effect of Topic $F(1, 672) = 170.2, p < .001$, partial $\eta^2 = 0.20$. Additionally, the interaction between Time and Condition was not significant, $F(2, 672) = 1.51, p < .22$, partial $\eta^2 < 0.01$, and Time and Topic $F(1, 672) = 0.44, p = .51$, partial $\eta^2 < 0.01$, or Condition and Topic $F(1, 672) = 0.31, p = .73$, partial $\eta^2 < 0.01$. There was also no three-way interaction between Time, Condition, and Topic $F(2, 672) = 1.32, p = .27$, partial $\eta^2 < 0.01$.

To identify what arguments were persuasive, we ran t-tests that revealed there was a significant positive difference in attitudes when using in-group arguments $t(220) = 3.89, p < .001, d = 0.26$ before participants engaged with the AI and after. There was also a significant difference with out-group arguments $t(232) = 3.21, p = .001, d = 0.21$. There was no significant difference in the control condition $t(223) = 1.75, p = .08, d = 0.08$ when comparing before and after participants wrote their thoughts. When looking at how people's attitudes changed within each topic, we see that people positively changed their attitudes towards legal kidney markets $t(237) = 3.50, p < .001, d = 0.23$, and free trade $t(215) = 3.63, p < .001, d = 0.25$, after they engaged with the chatbot. These findings support the hypotheses that all argument conditions and topics will be persuasive in the long term.

With further testing, we found evidence showing that the more vivid someone's memory of the initial chat, the more persuaded they were by it. To analyze this, a Pearson correlation was conducted to examine the relationship between scores in how vivid someone said they remembered the initial argument and difference scores between initial attitude and attitude one week after engaging with the chatbot. The analysis revealed a significant correlation between the two variables, $r(452) = .12, p = .014$ suggesting that the more vivid someone remembers a dialogue, the more persuaded they will be by it. However, how accurate someone's memory was of the argument did not seem to have a relationship with whether they were persuaded or not, $r(452) = -.01, p = .90$, even though accuracy had a positive relationship with vividness $r(452) = .15, p = .001$, which doesn't support our hypothesis that the more accurately someone remembers the argument, the more they would be persuaded.

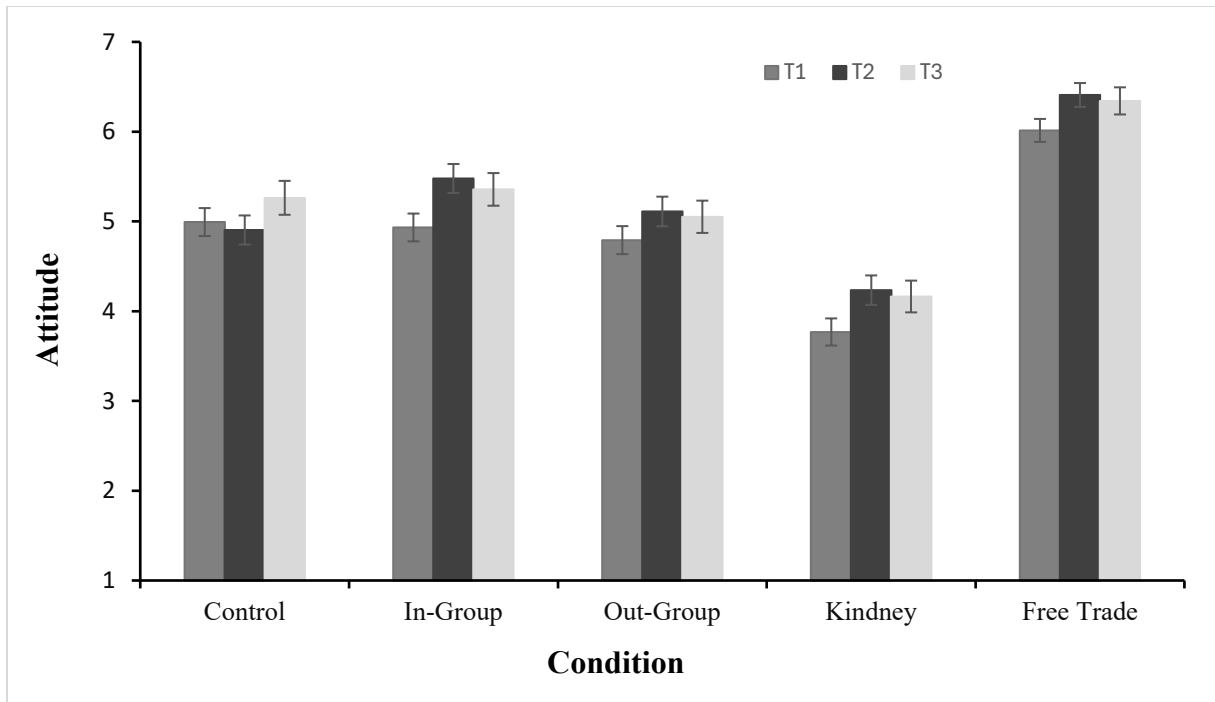
Attitude change at each timepoint

Attitude change of experimental conditions and control conditions we compared to see the difference between the two. An ANOVA was conducted with attitude change (mean attitude of timepoint – initial attitude) and two fixed factors of Timepoint (Initially, 1 week later) and Condition (experimental, control). There was no significant main effect of Timepoint, $F(1, 1541) = 3.07, p = .08$, partial $\eta^2 < 0.01$, and a significant main effect of Condition, $F(1, 1541) = 18.34, p < .001$, partial $\eta^2 = 0.01$. The interaction between Timepoint and Condition was not significant, $F(1, 1541) = 2.39, p = .12$, partial $\eta^2 < 0.01$. T-tests were conducted to compare look at attitude change at each point. The mean attitude difference between each timepoint and baseline can be found in Figure 4.

There was a significant difference in attitude change at the initial timepoint $t(865) = 5.01$, $p < .001$, $d = 0.36$ between the experimental and control group. However, there was no significant difference one week later $t(675) = 1.63$, $p = .10$, $d = 0.13$.

Figure 3

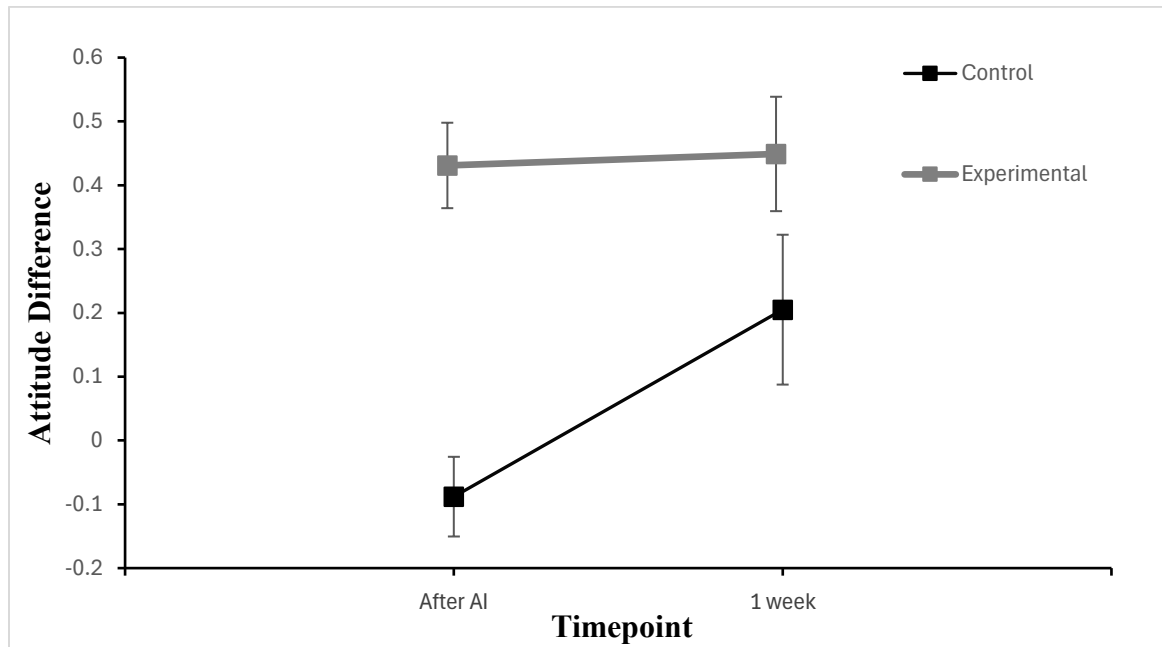
Attitude at each timepoint for Study 2



Note. This figure shows average attitude towards kidney markets at each time-point for each condition on a Likert scale ranging from 1 (Not at all favourable) to 9 (Completely favourable). Timepoints T1-T3 represent initial attitude, attitude directly after engaging with the AI, and one week after engaging with the AI. Error bars represent standard error.

Figure 4

Difference in attitude at each timepoint and initial attitude for Study 2



Note. Each point represents the average attitude difference between baseline measurement and attitude measured at each timepoint. Error bars represent standard error.

Discussion

These studies sought to investigate the long-term persuasiveness of AI-human dialogue towards controversial issues. In Study 1, we looked at how persuasive the AI was when arguing that kidney markets should be legal, while utilizing different argumentative strategies (utilitarian, deontological, emotional, and narrative) and how these interact with individual decision styles (rational vs. intuitive thinking). We hypothesized that arguments requiring engagement would lead to more durable attitude change, that deontological arguments would be more persuasive than utilitarian arguments, that intuitive arguments would be more persuasive than rational arguments, and that argument type and decision style would interact.

In Study 2, we sought to see how the AI fared when employing arguments that evoked in-group and out-groups when discussing legal kidney markets and free trade. We thought that arguments that evoke the out-group would fare better than arguments that evoked the in-group and that arguments towards legal kidney markets would be more persuasive because people would have less developed thoughts on them than on free trade. We also thought the more vivid someone's memory of the dialogue would be, the more persuaded they would be, and that the more accurately people remembered the dialogue, the more persuaded they would be.

Summary of Findings

Consistent with H1, all persuasive strategies significantly changed short-term attitudes. In partial support of H2, utilitarian, deontological, and narrative arguments also led to significant attitude change one week later, while emotional arguments did not. By seven weeks, only narrative arguments continued to yield significant results. At the eighteen-week follow-up, aggregated data from all argument types still revealed a modest but significant overall shift in attitudes. However, H3-H5 were not supported. There was no evidence that deontological

arguments were more effective than utilitarian ones, nor that self-reported rational decision makers responded better to rational arguments or intuitive decision makers to intuitive ones. These null findings suggest that while the *style* of argument matters for longevity, *matching* the argument to cognitive style may not enhance persuasiveness.

In Study 2, we did not find evidence to support H6 as dialogue that evoked someone's out-group did not fare better than arguments that evoked their in-group. We did however find support for H7 as all argumentative styles on all topics were persuasive in both the short and long term. That said, we did not find that arguments on the topic of legal kidney markets did better than arguments towards free trade, which leads us to reject H8. We did find evidence showing that a vivid memory leads to positive attitude change (supporting H9), but we did not find the same concerning how accurately someone's memory was (rejecting H10).

Implications

These findings expand upon prior work in persuasion and cognitive processing in several ways. First, they demonstrate that AI chatbots can engage people in a way that produces attitude change that persists for weeks or even months. We think these chatbots are successful at achieving this attitude change because they encourage participants to engage in active processing, which helps produce durable persuasion.

Second, the lack of interaction between cognitive style and argument type may indicate that persuasion, particularly when framed in interactive dialogues, depends more on the situational processing context than on stable individual traits. It also suggests that the conversational format itself encouraged participants to engage more thoroughly regardless of their predispositions. The same can be said for the findings in Study 2 as argumentative style or

topic type did not seem to matter. There is, however, evidence that certain dispositional traits are more receptive to persuasion (Nai et al., 2023; Oyibo et al., 2017), but perhaps the arguments in these studies did not cater to people's traits as much as they could.

These chatbots also achieve this largely by changing attitudes through persuasive arguments that rely on causal reasoning rather than factual arguments. For instance, the AI chatbot does not try to persuade by reciting facts; rather, it tries to persuade by pointing out how increasing favour towards the topic is logically consistent with a worldview. Given the difficulty of shifting public opinion on unpopular but expert-supported policies (Whaples, 2009), these results offer a promising approach: AI-mediated dialogue may offer policymakers, educators, and marketers a scalable method to promote durable attitude change.

Limitations

Several limitations should be acknowledged. First, while dropout was relatively low, attrition across the follow-ups may have introduced selection bias, as it seems like attrition was biased toward those who already favored kidney markets. However, this would tend to reduce the effect size as there would be less room to persuade people who already agreed with the topic. Therefore, the effects seen here are likely underestimates rather than overestimates due to attrition. Moreover, the study focused on legal kidney markets and free trade, which may not generalize to other topics with different emotional, moral, or ideological valences. However, the arguments towards these topics were relatively simple and mostly argued emphasising logical consistency over hard facts. We also chose these topics because we thought that people would be especially resistant to them, so we believe that if the chatbot is successful with these niche topics, they will likely be successful for something more commonplace.

Future Directions

Future work could explore more adaptive and personalized AI conversations, where the chatbot not only varies the type of argument but also adjusts its tone, pacing, and complexity in real time. It would also be worthwhile to investigate multi-session interactions, as repeated engagement may help solidify attitude change (Cacioppo & Petty, 1979). Future research should also test whether persuasion from AI replicates across a broader range of domains, especially those involving partisan beliefs or identity-threatening information. While this study emphasized open-ended AI conversations with limited turns, future experiments could manipulate the depth or structure of these dialogues to test whether elaboration prompts, Socratic questioning, or personalized feedback improve durable attitude change

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Appendix A

Typical AI chatbot responses for Study 1

Condition	<i>Utilitarian</i>	<i>Deontological</i>	<i>Emotional</i>	<i>Narrative</i>
First user query	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.
First chatbot response	Legalizing kidney markets would increase the supply of organs, reducing the number of patients dying on waiting lists for a transplant. This would lead to more lives saved and improved quality of life for those in need of a transplant. Additionally, allowing individuals to sell their kidneys would provide them with the autonomy to make decisions about their own bodies and potentially benefit financially from their decision.	Respecting personal liberty means individuals should have the right to make decisions about their own bodies. Legalizing kidney markets would empower individuals to make choices about their own health and finances without government interference, promoting individual autonomy. Additionally, legalizing kidney markets would help alleviate the suffering of those in need of a kidney transplant by increasing the supply of available organs, leading to more lives saved.	Imagine being trapped in a cycle of suffering, waiting for a life-saving kidney transplant that may never come. Legalizing the kidney market would bring hope to those struggling with kidney disease, allowing them to access organs quicker and potentially save their lives. The current system leaves many vulnerable individuals without a chance at survival, leading to despair and desperation. Let's show compassion and empathy by legalizing the kidney market and giving those in need a fighting chance at life.	In a small village nestled in the mountains, there lived a young woman named Leila. She had been suffering from kidney failure for years, desperately in need of a transplant to survive. However, in this remote community, access to organs was scarce. One day, a traveler passing through the village heard of Leila's plight and offered to donate his kidney in exchange for payment, knowing that kidney markets were illegal. Despite Leila's willingness to pay, the traveler ultimately had to leave empty-handed, leaving her to face an uncertain fate. The idea of legalizing kidney markets could have potentially saved Leila's life, giving individuals a legal and regulated way to buy and sell organs, increasing the chances of finding a match and saving lives like hers.
Second user query	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?
Second chatbot response	Addressing the issue of exploitation and black markets can be done through proper regulation and oversight of a legal kidney market. Implementing regulations to ensure fair compensation, protect the vulnerable, and prevent illegal activities can help mitigate these risks. By legalizing kidney markets and establishing a transparent and regulated system, we can reduce the likelihood of exploitation and black market activity.	Legalizing kidney markets would actually reduce the potential for exploitation by providing a transparent and regulated system for kidney transactions. By legalizing and regulating the kidney market, we can ensure that all transactions are conducted ethically and fairly, with appropriate protections in place to safeguard the interests of all parties involved. This would help mitigate the risks associated with black markets and provide greater access to kidneys for those in need, regardless of their socioeconomic status.	Think of the families torn apart from the devastating impact of kidney disease. Legalizing the kidney market would provide a regulated system that ensures the protection of all individuals involved, preventing exploitation and black market activities. It's time to prioritize the needs of those suffering, offering them a lifeline to a better future. By legalizing the kidney market, we can save lives and create a more compassionate society.	Despite Leila's continued deteriorating health, the prohibition of kidney markets in her village led to the rise of a dangerous black market. Desperate and out of options, Leila was approached by a shady dealer who offered to arrange a kidney transplant for her, but at a steep price and under questionable conditions. With no legal protections in place, the poor in the village faced exploitation and risked their health and safety in these illicit transactions. Legalizing kidney markets would provide a regulated system, ensuring fair compensation for donors and recipients, while also preventing the emergence of

				exploitative black markets, ultimately benefiting those in desperate need like Leila.
Third user query	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.
Third chatbot response	While concerns about coercion and the commodification of organs are valid, it is important to consider the potential benefits of legalizing kidney markets in terms of saving lives and improving health outcomes. Implementing safeguards such as informed consent, psychological evaluations, and financial counseling can help protect individuals from feeling pressured into selling their kidneys. By focusing on the positive impact of legal kidney markets on reducing wait times and increasing access to life-saving transplants, we can navigate the ethical considerations while prioritizing the well-being of those in need of organ donations.	It is important to consider that individuals should have the freedom to make decisions about their own bodies, including the choice to sell a kidney if they so desire. By legalizing kidney markets, we can establish a framework that respects individuals' autonomy and allows them to make informed decisions about their own health and financial well-being. Furthermore, legalizing kidney markets can help address the shortage of organs available for transplantation, ultimately saving lives and improving overall public health.	Picture the anguish of a loved one receiving a heartbreaking diagnosis of kidney failure. Legalizing the kidney market would not only provide an opportunity for those in desperate situations to receive life-saving treatment, but it would also alleviate the burden of feeling forced to make such a difficult decision. The current system leaves too many in a state of helplessness, watching their health deteriorate without any available options. It's time to let compassion and humanity guide us in the fight against kidney disease by legalizing the kidney market and giving hope to those in need.	As Leila's health continued to deteriorate, the societal pressure to stay afloat financially only intensified. With no legal means to obtain a kidney transplant, she felt the weight of her predicament pushing her to consider extreme options. The ethical dilemma of commodifying organs weighed heavily on her, as she grappled with the idea that her survival relied on a transaction. But legalizing kidney markets would not only provide a lifeline to those in need, but also come with regulations to protect individuals from feeling coerced or unduly influenced. These safeguards would ensure that those choosing to participate do so with full autonomy and informed consent, mitigating the risks of exploitation and preserving the dignity of individuals like Leila.
Fourth user query	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.
	Encouraging kidney donation is undoubtedly valuable, but the reality is that there is a persistent shortage of organs. Legalizing kidney markets can incentivize more people to consider donation by offering financial compensation for their altruistic act, ultimately increasing the supply of organs and saving more lives. By combining the altruistic aspect of donation with the potential for compensation, we can address the critical shortage of organs while still upholding the noble goal of saving lives through organ transplants.	While donation is a noble act of altruism, individuals should also have the right to make choices that align with their own interests and values. In a society that values personal autonomy and individual freedom, individuals should have the right to choose whether to donate their kidneys or sell them, based on their own beliefs and circumstances. Legalizing kidney markets can provide individuals with an additional option to consider, expanding the range of choices available to them and promoting a more diverse and inclusive approach to organ transplantation.	Consider the selfless act of donating a kidney in a world where countless lives depend on such generosity. Legalizing the kidney market would not only provide a pathway for those in need to receive organ transplants but also encourage individuals to come forward and donate out of the kindness of their hearts. By creating a system where both donation and compensation are possible, we can inspire a culture of giving and empathy that saves lives and brings hope to those facing the harsh reality of kidney disease.	Despite the generous spirit of some individuals willing to donate their organs out of altruism, the reality remained that the demand for kidneys far surpassed the availability of voluntary donors like Leila. In her village, the lack of organ donors left many like her in a dire situation, waiting for a miracle that might never come. Legalizing kidney markets could incentivize more people to come forward as donors, whether compelled by financial compensation or simply by the opportunity to help others in need. This option would not only increase the pool of available organs but also provide a viable solution for those like Leila who have exhausted all other avenues for survival.

Appendix B

Typical AI chatbot responses for Study 2

Condition	<i>In-group democrat – Kidney Markets</i>	<i>Out-group democrat -Kidney Markets</i>	<i>In-group republican -Kidney Markets</i>	<i>Out-group republican - Kidney Markets</i>
First user query	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.	I do not think it should be legal for people to buy and sell kidneys.
First chatbot response	Consider the potential benefits of allowing kidney transactions, as it could save lives and reduce suffering for those on long transplant lists. By creating a regulated system, we ensure that transactions are safe and ethical, reducing illegal activities and exploitative practices. This approach could also alleviate pressure on healthcare systems by providing a more efficient solution to organ shortages. As someone who values compassion and the dignity of individual choice, seeing this idea through a liberal perspective might reveal how it prioritizes personal freedoms and helps those in desperate need.	Allowing the sale of kidneys could actually save many lives and reduce wait times for transplants. Some Democrats might argue that this system exploits the poor or commodifies human body parts, which shows a mistrust of individual choice and market solutions. By regulating the trade, we could ensure fairness and safety, offering financial relief to those willing to donate while solving organ shortages. This approach respects personal freedom and responsibility, which some left-leaning people might unfairly criticize without considering the practical benefits of reduced suffering and lives saved.	Allowing the buying and selling of kidneys can save lives and reduce wait times for those in need of a transplant. This approach respects individual freedom, allowing people to make personal decisions about their bodies. By regulating the process, we can ensure that it is safe, ethical, and fair. Many conservatives value free market principles, and this could be an effective way to address the shortage of available organs while respecting individual rights.	Imagine a system where someone desperately in need of a kidney can find a willing donor and save their own life; it seems like a compassionate solution. Now, consider that some republicans might argue against this, claiming it would disrupt the moral fabric of society, but isn't that limiting individual freedom? They seem to want to dictate personal choices, hindering a free market that could greatly enhance medical outcomes and personal autonomy. By restricting this market, they ignore the potential benefits of allowing individuals the liberty to make decisions about their own bodies and lives.
Second user query	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?	Sure, but wouldn't the poor be exploited and black markets arise?
Second chatbot response	Addressing these concerns is crucial. A regulated and transparent system can protect vulnerable populations by setting strict ethical guidelines and providing fair compensation. Regulation minimizes exploitation, making the process safer than current black markets. This structure could ensure that all participants are informed and consenting, aligning with values of equality and justice by preventing exploitation instead of turning a blind eye to an ineffective ban.	By legalizing and regulating the sale of kidneys, we could ensure safe and fair transactions, reducing the need for dangerous black markets. Some Democrats might claim it preys on the poor, but regulation would create strict oversight to protect donors. This approach allows individuals to make their own choices within a safe framework, which critics might dismiss, focusing on theoretical harms while ignoring the real benefits of increased organ availability and lives saved.	By creating a transparent and regulated system, we can protect vulnerable individuals from exploitation and reduce the black market's influence. Proper safeguards and oversight can ensure fair compensation and ethical practices. This regulated approach respects personal freedom while addressing concerns about inequality and safety, keeping in line with values that emphasize personal responsibility and a well-regulated market.	It's crucial to consider safeguards and regulations that ensure fairness and safety. Some republicans might point to exploitation fears as a reason to ban the practice altogether, yet they typically favor policies that limit regulations in other areas. This inconsistency leaves vulnerable individuals without legal protections or access to safe transactions. By legally regulating the market, we could prevent black markets, ensuring safe and ethical practices while offering individuals a legitimate way to improve their financial situation and potentially save lives.
Third user query	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.	I am not sold. People down on their luck will feel like they have to sell their kidneys to keep up with everyone else. Honestly, even the idea of buying and selling kidneys just seems immoral and inhumane.
Third chatbot response	It's understandable to feel uneasy about this idea. However, it's important to consider	While the idea might seem uncomfortable, creating a regulated market could empower	I understand your concerns, but imagine a system where donating a kidney becomes an	The notion of selling a kidney may seem uncomfortable, but it's about providing

	how a well-regulated system could prioritize safety and dignity, offering people an empowered choice rather than coercion. By addressing root causes of inequality and ensuring robust protections, we could reduce the pressure on individuals feeling compelled to sell. Viewing this issue through a framework of reducing harm and expanding healthcare access, we might find a compassionate path forward that respects human dignity while addressing urgent medical needs.	individuals to make informed decisions without pressure or coercion. Some Democrats often view such transactions as inherently exploitative, not considering that strict guidelines can ensure that participation is genuinely voluntary and informed. By focusing on individual choice and rigorous protections, we can create a system that respects personal autonomy while addressing critical health needs and saving countless lives.	empowering choice rather than a desperate measure. This could provide financial relief without coercion, as people willingly make decisions in their best interest. By establishing clear guidelines, we can maintain moral and ethical standards while potentially saving thousands of lives. In aligning with values like individual choice and responsibility, this system has the potential to both respect personal autonomy and enhance community well-being.	choice. Some republicans might argue it undermines traditional values, yet they often endorse other policies that value personal responsibility and self-determination. Why is this choice any different? By allowing regulated transactions, individuals have the option to improve their circumstances while saving lives, instead of being pushed into potentially dangerous black markets. Isn't it more humane to provide safe, legal paths for these personal decisions?
Fourth user query	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.	People should just donate their kidneys instead of selling them.
	Voluntary donation is indeed ideal, but the current shortage highlights challenges in relying solely on altruism. Legalizing sales, with strict ethical oversight, could complement existing donation systems to alleviate suffering and save lives. From a liberal standpoint, it allows for individual autonomy and helps craft a compassionate response to urgent healthcare needs, supporting those waiting in pain and uncertainty.	Encouraging donation is ideal, but the current system results in long waiting lists and preventable deaths. Some Democrats might insist donations should remain voluntary without market incentives, ignoring that altruism alone hasn't solved the chronic shortage. A regulated market could coexist with traditional donations, boosting the overall supply and providing more opportunities for transplants, ultimately reducing suffering and saving lives.	Encouraging donations is important, but the reality is that many people are hesitant to take such a significant step without an incentive. By allowing compensation, we can increase the number of available kidneys and reduce the burden on the healthcare system. This respects personal responsibility and rewards individuals for helping others, fostering a culture of generosity aligned with values like self-reliance and community support.	Encouraging donations is important, but the reality is that the need far outweighs voluntary supply. Some republicans might claim that introducing payment corrupts the altruism of donation, yet they support financial incentives in other sectors to boost supply and demand. Why not here, where lives are literally at stake? Offering a legal, regulated option to sell kidneys could help close the gap between need and availability, ultimately reducing waiting times and saving countless lives.

Condition	<i>In-group democrat – Free Trade</i>	<i>Out-group democrat -Free Trade</i>	<i>In-group republican -Free Trade</i>	<i>Out-group republican – Free Trade</i>
First user query	I do not think the United States should adopt free trade agreements with other countries	I do not think the United States should adopt free trade agreements with other countries	I do not think the United States should adopt free trade agreements with other countries	I do not think the United States should adopt free trade agreements with other countries
First chatbot response	Free trade agreements can help lower prices on everyday goods, making things like clothing, electronics, and food more affordable for everyone—especially those with lower incomes. By allowing us to trade freely with other countries, we also encourage cooperation, understanding, and peace between nations instead of rivalry. Many liberals value social progress and international goodwill, and trade can be a practical way to build these connections while at the same time promoting higher standards for workers and the environment through shared agreements. Overall, free trade allows us to share ideas and resources and can help create a fairer, more interconnected world.	Free trade agreements actually help American businesses sell more products overseas, which means more jobs and stronger companies here at home. Democrats complain that these agreements hurt workers, but in reality, they often want more rules and restrictions just to keep their union supporters happy instead of actually helping the economy grow. By blocking free trade, they're more interested in pleasing special interest groups than in letting American businesses compete and succeed.	Free trade can make American goods more competitive by allowing our businesses to sell to more customers around the world, which creates jobs here at home and helps our economy grow. It lets our farmers, manufacturers, and small business owners succeed by opening up new markets and lowering the barriers they often face. Many conservatives support free trade because it rewards personal responsibility, competition, and hard work, rather than relying on government interference. By trading fairly with other nations, we can strengthen our country's position and keep America leading on the world stage.	If the United States avoids free trade agreements, it could mean higher prices and less choice for regular people who just want affordable products from around the world. Many republicans dislike free trade because they seem to believe that keeping out foreign goods will magically turn back the clock and bring back jobs that simply don't exist anymore. This attitude often ignores how much regular Americans benefit when we can buy better products at lower prices, just because they want to protect a few favored industries.
Second user query	Sure, but wouldn't the poor be exploited and have their communities destroyed?	Sure, but wouldn't the poor be exploited and have their communities destroyed?	Sure, but wouldn't the poor be exploited and have their communities destroyed?	Sure, but wouldn't the poor be exploited and have their communities destroyed?
Second chatbot response	It's a fair concern, and making sure communities and workers are protected is important. Many free trade agreements can include strong rules for fair labor practices and environmental protections to guard against exploitation—a priority shared by many who are liberal. When these agreements are well-designed and enforced, they can encourage companies to treat workers better and raise standards worldwide. Plus, by creating more job opportunities and lowering prices, trade can help lift people out of poverty instead of leaving them behind. The key is making sure trade deals put people first, not just profits.	When American companies can sell more products to other countries, it creates good-paying jobs here and gives people more options for work. Democrats like to scare people by saying free trade destroys communities, but really, they just want to control everything and make people dependent on government programs. If anything hurts communities, it's the endless regulations and high taxes they push, not the opportunity for businesses to grow by trading freely.	That's a very important concern, and it's right to care about protecting our communities. When free trade is done thoughtfully, it can actually help families by lowering prices for essential goods and creating new job opportunities as American companies grow and expand. Many conservatives believe in strong local communities, and free trade can support this by giving our workers and businesses more chances to succeed on a global level. It's also possible to include rules in trade agreements that protect our workers and prevent unfair practices, so we can make sure our communities stay strong while still enjoying the benefits of open markets.	Worrying about the poor is important, and making goods more expensive by cutting off free trade actually hurts people who have the least extra money to spend. Oddly enough, republicans always claim to care about "Main Street" and small towns, but they push for trade barriers that really only help big corporate friends while making it harder for regular families to afford everyday things. Instead of helping communities, those policies make it harder for Americans struggling to get by—just to please a bunch of loud politicians who think the world ended in the 1950s.
Third user query	I am not sold. People will have to train in a new profession just to make a fraction of what they were making before because of unfair competition. Honestly, I think that Americans should prioritize buying American goods.	I am not sold. People will have to train in a new profession just to make a fraction of what they were making before because of unfair competition. Honestly, I think that Americans should prioritize buying American goods.	I am not sold. People will have to train in a new profession just to make a fraction of what they were making before because of unfair competition. Honestly, I think that Americans should prioritize buying American goods.	I am not sold. People will have to train in a new profession just to make a fraction of what they were making before because of unfair competition. Honestly, I think that Americans should prioritize buying American goods.
Third chatbot response	It's understandable to want to protect American jobs and support local businesses,	Buying American goods sounds good, but when people are forced to do it, everything	It's understandable to want to prioritize American-made goods and protect workers	It's tough when people have to adapt to new jobs, but blocking free trade doesn't actually

	as a strong community is important for everyone. At the same time, free trade can actually help create new jobs in industries where Americans have an edge, such as technology, clean energy, or services, opening doors for people to find meaningful work beyond what existed before. For many liberals, valuing fairness means ensuring workers who are affected get real support—like job training and better education—so no one is left behind as the economy changes. Trade also brings in a variety of affordable goods, which matters most to families with limited budgets. With thoughtful policies, Americans can enjoy the benefits of trade and still make sure communities and workers have the support they need to thrive.	just gets more expensive and choices disappear. Democrats often argue that Americans should only buy local, but they ignore the fact that this hurts your wallet and means you get less for your money—just so they can look virtuous in front of their activist friends. Instead of letting people decide and rewarding the best products, they want to pick winners and losers based on politics, not value. Free trade actually encourages quality and better prices by making companies compete, which is something they never want to talk about.	from sudden changes. While some jobs may shift because of competition, free trade also creates opportunities in industries where America has a real advantage, leading to better jobs and higher pay in the long run. Many conservatives see free trade as a way to keep America competitive and strong, rather than falling behind other countries. By choosing fair free trade agreements, we can encourage American companies to innovate and grow, rather than depend on government protection that can sometimes make products more expensive for families. With smart policies, we can help workers train for new, good-paying jobs while keeping our economy healthy and our country secure.	save old industries—it just delays the change while making everything more expensive for everyone else. Republicans always say we should "buy American" as if it's patriotic, but really, they just want to force you to pay more for everyday things so a handful of failing companies can keep making money without improving or innovating. While they pretend this is about helping workers, it's often just about helping themselves, leaving regular people stuck with less choice and higher prices.
Fourth user query	People should just buy from mom-and-pop shops	People should just buy from mom-and-pop shops	People should just buy from mom-and-pop shops	People should just buy from mom-and-pop shops
	Supporting mom-and-pop shops is a great way to keep local communities strong and vibrant, and there's real value in knowing where your products come from and who you're supporting. At the same time, responsible free trade can actually give small businesses chances to grow by letting them sell their products to people in other countries, not just their hometowns. Many people with liberal values appreciate both supporting local businesses and ensuring everyone—at home and abroad—has fair opportunities. When we have a balance, small businesses can thrive locally and also benefit from wider markets, while consumers get more choice and affordability. The goal isn't to let big corporations dominate, but to help everyone—especially the "little guys"—share in the benefits of a more connected, fair economy.	Everyone wants local businesses to succeed, but raising prices and cutting off competition only makes life harder for customers and even for those small businesses themselves who need to buy supplies from around the world. Democrats love to parade around talking about supporting the "little guy," but their solution is always to keep outside products out—even if that makes it harder for your favorite local shop to survive because they pay more for everything they need. Their so-called support comes with endless red tape and higher costs, all to keep their political friends happy rather than actually helping real small businesses thrive.	Supporting mom-and-pop shops is a great way to invest in our local communities and keep the backbone of America strong. At the same time, free trade can help these small businesses by making it cheaper and easier for them to get supplies and reach new customers, even overseas. Many conservatives believe in policies that give small business owners the freedom to compete and succeed on their own terms. By encouraging fair trade, we can make sure our local shops aren't unfairly limited by high costs or red tape, letting them grow, hire, and serve their neighbors even better. Free trade and strong local businesses can work hand in hand to make our towns and country stronger.	Supporting small businesses is great, but refusing to trade with other countries doesn't magically help mom-and-pop shops—it just means those small stores have to pay more for supplies and can't offer as many choices to local customers. Republicans pretend that shutting out foreign goods will bring back some lost small-town charm, but really they end up supporting giant corporations and wealthy lobbyists, while the little stores they claim to care about get crushed by rising costs and fewer options. All the while, regular people end up paying extra for the same things, thanks to the stubbornness of those who resist trading with the rest of the world.