# Chapter 1: Introduction – Broad Overview of Research

## A: Overview

1. Why is this study being undertaken? - public perceptions and human belief need to be changed, either due to new information (e.g., discovery of a new drug, or best practice) or due to changing circumstances (e.g., a global pandemic).
2. What main questions will we answer? – Social Consensus is known to be a useful tool, how useful is it (effect size), and what individual differences or covariates can affect it’s effectiveness?
3. What problems are we foreshadowing? - human beliefs can be difficult to change, especially when the issue is highly polarized, or seen as central to one’s perception of ‘right and wrong’ (e.g., Abortion, Immigration, Climate Change, etc.). Greater moral conviction towards one’s beliefs blunts the effectiveness of ‘social consensus’ magnifying the importance of understanding this further.

## B: Statement of the Problem

1. How can social consensus be used to change beliefs, and in what conditions is it effective? We wish to empirically show that social consensus manipulation can increase and decrease beliefs in a variety of issues. Additionally, that the effect of social consensus can be leveraged with a broader categorization (e.g., consensus of American public vs. consensus of peer students/rival students vs. consensus of close friends).
2. Skitka’s “Domain Theory of Attitude” implies that changing moral conviction can lead an attitude to shift from a ‘moral imperative’ (difficult to change belief) to a preference or convention (easier to change belief). However, this has not been empirically assessed as a way of changing beliefs. Additionally, how do different baseline levels of moral conviction around issues affect the willingness to change beliefs?
3. How can we maximize the effectiveness of social consensus to change beliefs? Social consensus is generally very effective at changing beliefs, except in conditions of high moral conviction. In theory, reducing moral conviction should increase the effectiveness of social consensus, however, this has not been empirically tested.

## C: Purpose

1. How can social consensus be used to change beliefs?
   1. How individual differences affect social consensus
   2. What type of social consensus is most effective
2. How does moral conviction affect belief change?
   1. How do different issues differ in baseline levels of moral conviction, and how do these baseline differences affect openness to belief change?
   2. What manipulations are best at increasing/decreasing moral conviction?
3. How do changing levels of moral conviction interact with the effects of a social consensus intervention?

## D: Research Question or Hypothesis/Significance of Study

* Study 1
  + We predicted high social consensus would lead to more positive support for highly polarized issues (H1)
  + Utilitarian and Deontological Orientation, of the ethical standards of judgement questionnaire (ESJQ) would be significant predictors of support for these polarized issues (H2)
* Study 2
  + We hypothesize that the moral conviction manipulation would be a significant predictor of support for our four topics (e.g., our hypothesis had no *a-priori­* directional effect), as compared to the control condition (H1).
  + Moral piggybacking and moral responsibility interventions would increase moral conviction relative to the control, and that the pragmatic and hedonic interventions would decrease moral conviction relative to the control (H2).
* Study 3
  + Decreases in moral conviction will lead to significantly greater effect of social consensus or, increases in moral conviction will lead to ‘inoculation’ against social consensus (H1).
* Significance of the Study – START THE SENTENCE TO DIRECTLY REFERENCE PERSUASION AND BELIEF CHANGE – ESPECIALLY IN POLARIZED TOPICS - Effective persuasion/dissemination of up-to-date information can critically impact public health and safety. Gaining further understanding of one of the best ‘tools’ available in the form of social consensus has direct applications in improving persuasion/science communication. Furthermore, addressing one of the largest theoretical weaknesses in this tool (e.g., high levels of moral conviction acting as ‘inoculation’ against social consensus) improves applicability, especially considering how many vital contemporary issues are held with high levels of moral conviction (e.g., climate change).
  + For instance… COVID 19 harm caused by inability to persuade or change beliefs – misinformation can cause harm (TWO EXAMPLES)
  + Applies to healthcare as the origin, but we expand further and go towards why changing beliefs here can be applicable more broadly.

## E: Summary of Methodology

1. Brief summary of methods – Unsure how to parameterize

## F: Definition of Terms

1. Universal Health Care (UHC) - Universal health coverage (UHC) means that all people have access to the full range of quality health services they need, when and where they need them, without financial hardship. It covers the full continuum of essential health services, from health promotion to prevention, treatment, rehabilitation and palliative care.
   1. Tracking universal health coverage: 2017 global monitoring report. Geneva: World Health Organization; 2017 (https://www.who.int/publications/i/item/9789241513555, accessed 27 July 2023
2. Capital Punishment – The process of sentencing convicted offenders to death for the most serious crimes (capital crimes) and carrying out that sentence.
   1. (Kasten 1996)
3. Climate Change – Climate change is a measurable systemic change in the state of the climate driven by natural events or anthropogenic activities that alter the composition of the atmosphere.
   1. Salonen, A.O., Reiser, D. (2023). Climate Change. In: Idowu, S.O., Schmidpeter, R., Capaldi, N., Zu, L., Del Baldo, M., Abreu, R. (eds) Encyclopedia of Sustainable Management. Springer, Cham. https://doi.org/10.1007/978-3-031-25984-5\_75
4. Utilitarianism – Ethical judgement based on outcomes, not intentions
   1. (Brady and Wheeler, 1996)
5. Deontology - Ethical judgement based on whether or not behavior adheres to a preconceived set of ‘rules’, this includes concepts like ‘rights’, ‘ideals’, and explicitly recorded law.
   1. (Brady and Wheeler, 1996)
6. Social Consensus – The degree of social agreement that a proposed act is evil or good
   1. (Jones 1991)
7. Moral Conviction - Morally convicted attitudes represent something psychologically distinct from other constructs (e.g., strong but nonmoral attitudes or religious beliefs), are perceived as universally and objectively true, and are comparatively immune to authority or peer influence. Morally convicted attitudes are held due to core beliefs about what is fundamentally right or wrong (i.e., abortion should be legal, due to the core belief that women should have full bodily autonomy).
   1. (Skitka, 2021; Skitka 2010)

# Chapter 2: Review of the Literature

## A: Introduction of Topics, Purposes, and Methods

## B: Description and Discussion/Critique of Scholarly Literature

## C: Inferences for Forthcoming Studies

# Introductory Paragraph Draft

Human belief change and persuasion has many direct applications in society. Providing information regarding best practices, scientific consensus, and state-level policy priorities in general can directly improve quality of life for ordinary people. However, dissemination of up-to-date information can be objectively worthless if the message itself does not adequately lead to belief change for the behavior at hand. For example, COVID-19 vaccine hesitancy was estimated to result in at least 232,000 preventable deaths, and a significant majority of those who refused vaccination had been exposed to persuasive misinformation through social media and other outlets (Jia et al., 2023; Lee et al., 2022). Changing beliefs also has common application with regards to political policy; Universal Health Care (UHC) has been shown to result in better overall population health outcomes, yet the United States is the only country in the developed world that still lacks Universal Health Care (UHC) for its citizens (Alspaugh, 2021). Changing the generally negative public perception of UHC in the United States (36% of Americans support UHC) would increase the likelihood of UHC adoption, and in doing so, improve population health (Pew Research Center, 2020).

Belief change is a multifaceted process, and prior literature lists many factors affecting openness to belief change for a given topic. Individual differences in (a) deontological and (b) utilitarian orientation broadly shape priorities and how issues are interpreted; (c) social consensus (e.g., the level of agreement on an issue amongst friends, family, peers, or other in-groups) consistently influences individuals; and (d) differences in attitudes due to core beliefs about what is fundamentally right or wrong (e.g., abortion should be legal, due to the core belief that women should have full bodily autonomy), which we define here as Moral Conviction, ‘inoculates’ individuals against changing their beliefs. Assessing how each of these individual factors interact and influence belief change broadly has real and direct implications for public health and safety.

## Attitude/Belief Formation

The broader literature of attitude formation directly informs the process of belief change. Historically, attitude formation was one of the cornerstones of early psychological research, originating with Thomas & Znaniecki (1918) and Jung (1923). Attitudes represent an evaluative integration of cognitions and affects in relation to a ‘subject’, which can be an object, person, or an abstract idea (Crano and Prislin 2006; Albarracin and Shavitt, 2018). Prior literature theorized that attitude was a fixed memory, preserved in amber until recollection was necessary; Another alternative perspective was that attitudes were constructed ‘in-the-moment’, based on ephemera, such as individual mood or outside temperature (Schuldt et al., 2011). Contemporary research however indicates that attitudes are in fact a composite of both elements, the structure of which allows attitudes to both maintain consistency and flexibility, as appropriate (Albarracin et al., 2005).

Understanding attitude measurement is another crucial issue when attempting to understand attitude/belief formation. Historically, attitude measures have consisted of self-report scales, using numeric responses on single items or aggregates. These explicit measures of attitude are both popular and effective for measuring attitudes that people are willing and able to accurately report (Himmelfarb, 1993; Greenwald & Banaji, 1995). However, many attitudes exist in which motivated response bias precludes explicit measurement; the Implicit Association Test (IAT) developed by Greenwald and colleagues (1998) directly addresses these issues. The core principle of the IAT assumes that attitudinal evaluation by a subject will manifest itself as differential response time, ostensibly representing a ‘true’ measure of attitude unrelated to social desirability or conscious awareness. Furthermore, accurate measure of attitudes necessitates awareness that attitudes are multifaceted, with attitude importance, attitude accessibility, attitude commitment, and attitude certainty all separate elements that are jointly evaluated to assess the broader concept of ‘attitude strength’ (Bizer & Krosnick 2001; Holland et al., 2003).

## Attitude Change

Research on attitude change has historically been aggregated under two broad umbrellas, attitude change based on the effects of persuasion, and attitude change based on social influence. In a broad sense, persuasion here means influencing based on the strength of detailed argumentation, irrespective of the source or context of the interaction. In contrast, social influence relies on appeals about the position of the source (e.g., from the head of the center of disease control). This aligns with the contemporary consensus behind the dual process theory of belief change (an adaptation of the dual process theory of Kahneman & Tversky, 1974), which posits that under conditions of low motivation or lack of ability, attitude judgements are based on heuristics and shortcuts (System 1 thinking, e.g., Mom’s always right!) and in conditions of high motivation and care, judgement is based on systematic assessment (System 2 thinking) of the information (Chen & Chaiken 1999). Attitude judgements based on System 2 thinking had had significantly more confidence, while those based on System 1 thinking were less resistant to change and less stable (Petty & Wegener 1999); Kassin & Kiechel (1996) found that false accusations of negligence resulted in significant increases in reports of mistakes and false memories that a mistake was made, but only in conditions of high uncertainty, where individuals were relying on System 1 thinking.

An alternative model for attitude change labeled the ‘Unimodel’ posited by Kruglanski and Thompson (1999) claims that both cues/heuristics and message argumentation are parts of a larger category of information, defined as ‘persuasive evidence’. The Unimodel states that differing information contents (e.g., is this a heuristic, or a detailed argument?) are analogous to whipped cream in a can vs whipped cream in a tub; the distinctions between them is irrelevant insofar as it relates to how ‘persuasive evidence’ works to change minds. However, recent studies indicate that the Unimodel has not been shown to sufficiently explain attitude change beyond the dual process models (Hedhli, 2022). In an applied sense, the dual process model has been shown to be more predictive than a unimodal framework when applied to perceptions of advertising, retail experiences, and branding (Maheswaran, Mackie,and Chaiken 1992; Richard and Chebat 2016).

In a broader sense, attitude change can also occur on a societal level, where generational changes reflect commensurate changes in attitudes. For example, political polarization has increased significantly for 12th graders in the 2010s as compared to prior decades (Twenge et al., 2016), or the “Obama Effect” from 1992-2008 wherein election surveys indicated that amongst white participants, belief in black intelligence and work ethic significantly increased (Welch & Sigelman, 2011).

Furthermore, contemporary research finds that attitude support is bipolar, and not two ends of a single continuum; Information processing is more effortful at high levels of ambivalence, as compared to strong love or strong hate (Van Harreveld et al., 2004). D

Belief change and attitude formation is one of the cornerstones of psychological research (Wood 2001), which begain in 1917-1923 (Thomas & Znaniecki; Jung).

* Attitude represents an evaluative integration of cognitions/affects (Crano and Prislin 2006; Albarracin and Shavitt, 2018) – in relation to an ‘subject’ , which can be an object, person, or abstract idea
  + Notably, the broader concept of ‘attitude strength’ itself has multiple dimensions (attitude importance, attitude accessibility, attitude commitment, attitude certainty), which are each affected differently by subjective experience (Bizer & Krosnick 2001; Holland et al., 2003)
    - Attitude support can be seen as two separate dimensions (e.g, not just bipolar), given that information processing is more effortful at high levels of ambivalence (vs love or hate) (van Harreveld et al., 2004)
    - Ambivalence is also associated with greater openness to change
    - The experience of ambivalence motivates the search for corrective information, making those with ambivalent attitudes ESPECIALLY susceptible to consensus influence (Hodson et al 2001)
  + Attitude measurement is most commonly done with self-report scales, although implicit association research has been increasingly more common (Greenwald 1998)
  + Attitudes themselves can be seen as a hybrid of ‘fixed’ memories and momentary evaluations of an attitude subject (Albarracin et al., 2005)
  + General ‘dispositional’ attitude also exists as an individual difference – e.g., some people’s attitudes can be similar across different objects (Hepler & Albarracin 2013)
    - Such that these individuals tend to ‘like’ or ‘dislike’ stimuli (e.g., tend to be a ‘hater’ or a ‘lover’), which persists with high internal consistency.
    - Notably, these dispositions can predict unknown attitudes, including towards completely novel objects. (e.g., Those who generally like objects also liked a new object, but those who dislike objects, disliked the new one.
* Several models exist for attitudes
  + Belief-based models (attitudes are based on salient beliefs about object, as a joint function (e.g., evaluate all salient beliefs))
  + Functional models: Attitudes exist to serve various psychological functions thus attitudes that serve symbolic functions (e.g., moral beliefs), can be much more difficult to change (Carpenter, Boster, & Andrews, 2013)
* Attitude change can be aggregated under two main umbrellas, attitude change based on the effects of persuasion, and attitude change based on social influence.
  + Notably, meta-analysis indicates that attitude change in experimental conditions is of moderate effect at best.
    - Merely imagining contact with an ‘outgroup’ (Miles & Crisp, 2014) reveal that 14% of participants were likely to have positive attitudes than those who did not imagine.
    - Risky sexual behavior intervention changes attitudes (Tyson et al., 2014), 60% had changed w/ intervention, vs 50% without intervention.
  + Meta-analysis indicates (Lemmer & Wagner, 2015) showed that field interventions can reduce inter-group conflict between two different ethnic groups, 11% increase (50 to 61) of positive attitudes. Some attitudes (even those difficult to change) can be moved! Attitude change based on interventions/messages GENERALLY average around d = 0.22, a small effect, but which is durable.
    - Regardless of the theory of persuasion – in general, tailoring persuasive messages to their audience increases effectiveness (Okeefe, 2016)
  + Persuasion = influencing based on the strength of detailed argumentation, regardless of the source/context of the interaction
  + Social influence – appeals about the position of the source (e.g., from the head of the CDC)
    - Sources can have huge impact on belief change/attitude formation (e.g., Fauci COVID 19, trump as president misinformation)
    - Minority dissent e.g., being shown a dissenting opinion that has low social consensus) has some benefits, improving thought processes and critical/divergent problem analysis (De Dru & West 2001)
    - In social networks, similarity in attitudes towards ‘discipline’ was due to influence rather than selection (de Klepper et al., 2010), those who have attitudes similar to friends, because they had become friends w/ others who had then influenced them
      1. This is STRONG evidence for the potential benefits of social influence, beyond just ‘echo-chamber’ aggregation. Indicates that you CAN influence your friends, even if you disagree initially.
    - Similarly, sharing similar ‘negative attitudes’ (e.g. we BOTH hate the Yankees) increases familiarity between people (Weaver & Bosson 2011)
  + In a broader sense, social context can also be shared public context more broadly, e.g., that there are generational changes that reflect on attitudes.
    - Political polarization has increased significantly in 12th graders (youths) in the 2010s, than in the prior decades (Twenge et al., 2016)
    - South African Desegregation (1973 to 2009) resulted in English speaking whites having MORE negative attitudes towards blacks through the WHOLE period (Mynhardt 2013)
    - Election surveys from 1992-2008 in the US, had increased White beliefs in Black intelligence and work ethic, although whites are seen as more positive than blacks still. This attitudinal shift was described as the “Obama Effect”, showing how ethnic diversity in positions of power can change social attitudes (Welch & Sigelman 2011).
* In general, attitude change is motivated by normative concerns about self-coherence/favorable evaluation/dissonance reduction, social reasons based on reward/punishment, or the information describing the attitude object persuading itself (Cialidini & Trost 1998).
* People can be easily persuaded in circumstances of low information or uncertainty
  + False accusation of negligence when the subject was uncertain if negligence happened (e.g., asked to work quickly) but it is plausible that it occurred, resulted in many reporting that they did make a mistake and have false memories that they did the wrong thing (Kassin & Kiechel 1996)
* Theories of motivation indicate several contexts in which belief change/attitude formation are directly affected for DUAL PROCESS reasoning (Chen & Chaiken 1999; Petty & Wegener 1999)
  + When more motivated/careful, judgement based on systematic assessment of information
    - E.g. “messages are presented, processed (and if successful, move recipient attitudes towards a position). This revised attitude may influence subsequent behavior.”
    - Notably, more system 2 thinking results in more confidence in judgements
  + When low motivation/unable, attitude judgements are based on heuristic information – aka shortcuts (e.g., dad’s usually right!)
    - Notably, these system 1 ‘attitudes’ are less resistant to change and less stable.
    - Interestingly, some literature indicates that the existence of consensus itself DOES bias information processing, affecting attitude formation, such that low/high consensus biases subsequent information processing such that favorable attitudes = high consensus, unfavorable attitudes = low consensus. Not just being a CUE that fosters heuristic adoption of a position (Erb & Bohner 2001)
    - When under explicit cognitive load, there is no preference for attitude-consistent information, as these biases rely on having ample processing resources (Fischer et al 2005)
  + Notably, simply being told that there is a potential attack to your attitude results in ‘inoculation’ against persuasion attacks, which is due to this threat leading to MORE motivated/thoughtful processing of own position (Pfau 1999)
  + Alternative model is the ‘unimodel’ (Kruglanski and Thompson 1999)
    - Poses that cues/heuristics and message arguments are actually seen as a larger category, that of ‘persuasive evidence’
    - Differing information contents (e.g., is this a heuristic or is it a detailed argument) are just (metaphorically) Tylenol caplets vs tablets, and the distinction b/w them is irrelevant insofar as it relates to how tylenol is assumed to work.
    - However, recent studies (Hedhli 2022) indicates that the Unimodel has not been shown to sufficiently explain attitude change beyond the dual process models. In an applied sense, the dual process model has been shown to be more predictive than a unimodal framework when applied to perceptions of advertising, retail experiences, and branding (Maheswaran, Mackie,and Chaiken 1992; Richard and Chebat 2016)
* Resistance to Persuasion – Can originate due to both cognitive and affective reactions (Fuegen & Brehm 2004).
  + Resistance strengthens initial attitudes to the extent that it is seen as succeeding even in the face of strong messages from expert sources (Tormala and Petty 2004a; Tormala and Petty 2004b). This relates to expert inoculation from morally convicted positions.
* Attitude Behavior consistency is moderated by STRENGTH of belief, stronger beliefs on attitudes are more predictive of actual behavior (Holland et al., 2002)
  + Notably for ambivalent attitudes, doing the behavior might not work if it violates the norm of self interest (Ratner and Miller 2001). Fear of publically supporting favored causes where there is no personal stake (e.g., student protests against Israel) can prevent nonvested individuals from acting on their interests.
  + Furthermore, this is a self-reinforcing loop – wherein the stronger a person’s attitude is, the more likely they are to select/seek attitude-congruent information (Brannon et al. 2007)

Wood 2001 - Attitude Change

Review of research from 1996-1998

* Focuses on social influence, information processing, and context of information
* COMBINES research on 'message based persuasion' and 'studies of social influence'

Persuasion = influence appeals use detailed argumentation, without necessarily considering the context of social interaction

Social Influence = appeals use information about the position of the source (e.g., from the head of the CDC), delivered in a context in which there can be interaction b/w participants.

**Motives for Agreeing with Others**

Why do people want to agree with others? Attitude change is motivated by NORMATIVE concerns over 1. ensuring coherence/favorable evaluation of self, 2. ensuring satisfactory relationships with others given rewards/punishments, 3. understanding the information describing the entity/issue in a persuasive appeal.

Thus, most appealing goal is managing self concent, or a coherent self-identity (Cialdini & Trost 1998; Caiken et al., 1996). These 'normative' motives affect the influence of persuasion/attitude change through information processing mechanisms

Lundgren & Prislin; 1998 Finds that when participants try to be accurate, they generate relatively balanced pro-con lists that relate to both sides of an issue - when asked to be persuasive, they made arguments that they thought would be aligned with the partner's view - when asked to defend their own position, they chose arguments that supported their OWN view!

**Public vs Private Influence**

There are not systematic differences between public and private expressions of judgement. Subjects motives for agreement can have extended effects that GENERALIZE to new contexts, after the original motives are no longer salient or relevant (e.g., Hardees was nearer to our old house than the superior MCDs, so we always went to it, but now that we've moved... we still go to Hardees).

Kassin & Kiechel 1996 'falsely' accused subjects of negligence when typing data into a computer, but when the subject was uncertain of the negligence (e.g., they were asked to type very quickly), they accepted a witnesses report, and (incorrectly) confessed to the allegation - over half reported that they did (even though they didn't) make a mistake, and over 1/3rd added (false memories) details that support the (false) allegation!

Public judgements/attitude expressions are JUST as accurate as private ones, while there are some norms that make it hard (e.g., politeness norms), there are features that increase accuracy/honesty as well. Cowan & Hodge 1996 - demonstrate that people told to share their reasoning in public, gave especially thoughtful, reasoned responses.

**Functional Theories of Persuasion**

Accuracy motives = utilitarian maximization of rewards/minimizing punishments

Self-concept motives = defending ego against potential threats and also expressing personal values

Social-relation motives = concerns for social adjustment, and obtaining social rewards, but avoiding social punishments (e.g., recycling might be utilitarian... but your anti-climate change friends will roast you for doing so).

**Dual Processing Models of Persuasion**

Not highly motivated (e.g., not an issue that involves me directly) or low ability (e.g., unintelligent, or distracted) = attitude judgements are based on EASILY available heuristic information (e.g., such as consensus = correct, thus agree with majority).

Highly motivated OR processing information carefully = attitude judgements based on thoughtful/systematic assessment of relevant information

More systematic thought = more confidence in judgements.

Pfau 1999; resistance research focuses on 'inoculation' against 'persuasion attacks'. Inoculation occurs when 'anticipated threats' (e.g., being TOLD that there is a potential attack to your attitude) motivate thoughtful processing to support one's own position or to counter opposing ones.

**Motivated Processing/Bias Correction**

Broader values affect and bias processing (Seligman et al., 1996), as well as participant self-interest (Gina-Sorolla & Chaiken 1997).

Stangor 2001 - Changing Racial Beliefs using Social Consensus

Provided feedback to european americans that OTHER PEOPLE they know hold different beliefs about african americans than they originally assumed these people held.

In response to this social pressure, they changed their own beliefs, and these changes are EVEN STRONGER when originating from a known ingroup vs a known outgroup/unrelated. Results persisted for at least 1 week. FURTHERMORE, when providing feedback that others AGREE with the racial sterotypes a subject may have, they were more RESISTANT to belief change afterwards. Essentially - learning about the racial beliefs of others can either produce or inhibit attitude change.

Stereotype formation research has previously focused on 'intergroup' contact (e.g., blacks and whites). This current research focuses on if intragroup contact affects stereotype formation, and how.

**Method**

23 european americans (white) were asked to estimate the % of African Americans that posses each of 19 sterotype traits (9 positive, 10 negative).

ALSO were asked to estimate using the same scale, how OTHER students at the university they went to felt on those traits.

Then, 1 week later, they were given FALSE CONSENSUS, either HIGH (a greater % of students held favorable beliefs, 20%~ were added to their estimates of positive traits, and the same removed to estimates of negative traits), or LOW (20% added to negative traits, same removed to positive traits).

Then, asked about SURPRISE levels (to ensure that the consensus information was attended to). Finally, participants reported their beliefs again on the original scale.

**Results - Experiment 1**

Positive and negative subscales were highly correlated, and stereotype valence was significant. Social influence ended up working - those who got positive feedback had more positive and less negative stereotypes. Those who got negative feedback had more negative BUT NOT FEWER POSITIVE sterotypes!

**Method + Results - Experiment 2**

They were given the same procedure... however when given information, they were told that the information was either from an ingroup (students @ the same college) or outgroup (students @ rival college).

The influence of consensus feedback was greater when coming from an ingroup vs outgroup source. Information about ingroup opinions can change attitudes on different but related measures (overall attitudes towards african americans).

**Method + Results - Experiment 3**

Same procedure as 1, HOWEVER, after measuring their 'surprise', they were given data about the "actual" characteristics of African Americans ("as determined by scientific research"). This lets them test what degree of attitdue change would occur if their beliefs were consensually validated (added or removed ~25%, so it was even MORE polarized than they initially got the feedback from the ingroup on!)

Asked again for surprise next, then asked to do a final measure of their % estimation of these traits.

**Discussion**

These results are persistent, it is EASIER to produce sterotype change in positive than the negative direction. Social desirability however is likely to affect the negative sterotype formation. This also allows people to draw inferences without interacting w/ individual group members, which makes sterotype change more likely.

Lying to people to change their minds isn't very ethical... HOWEVER, people suffer often from "pluralistic ignorance", (Miller & McFarland 1991) [SPECIAL NOTE - Can we test to see if various 'providing scientific feedback' has legs vs. social consensus on our issues? how would it work if we mixed in some very obvious scientific consensus results (gravity affects things, water boils at lower temps when lower pressure, etc.)

Gunduc 2015 – Persuasion power on consensus formation

Dynamic model of opinion – governed by two parameters, persuasion ability and persuasion.

Crano and Prislin 2006 – Attitudes and Persuasion

Overall coverage from 1999-2004

* An attitude represents an evaluative integration of cognitions and affects, experienced in relation to an object
  + Can vary in strength, which has implications for persistence, resistance, and attitude/behavior consistency.
* Attitude Change models: What factors affect attitude change?
  + “Classical model” States that messages are presented, processed (and if successful, move recipient attitudes towards a position). This revised attitude may influence subsequent behavior. If the person doesn’t process the message, they will use shortcuts (e.g., dad’s usually right!) to form an attitude, which is less resistant to change and less stable – this is a ‘dual process’ model (Chen & Chaiken 1999; Petty & Wegener 1999).
    - E.g., If the message is well reasoned, data based, and logical, it will persuade, if not, it will fail.
    - However… this doesn’t mesh well w/ our understanding of moral conviction, wherein strong beliefs can reinforce even against well reasoned arguments.
  + “Unimodel” directly accounts for the effects of the source and message in persuasion (Kruglanski and Thompson 1999)
* Minority Influence Research: How can a minority persuade majority to accept it’s position
  + E.g., majority sources typically produce immediate change (this is a social consensus effect!)
  + This is very challenging, and long term changes from minority sources are very challenging.
* Dissonance – Attitudes may be a CONSEQUENCE as well as a CAUSE of behavior
  + Posits that dissonance from cognitive issues interfere with belief consistent actions.
* Social Consensus – Level of consensus is the defining feature of majority/minority status.
  + Consensus does bias information processing (Erb & Bohner 2001); it does NOT merely act as a cue that fosters heuristic adoption of a position.
  + Mackie (1987) agrees with this position, systematic processing of consensually advocated positions because of their presumed validity, likelihood (greater) of adoption, and positive identity implications.
  + Minority dissent (e.g., being shown a dissenting opinion that has low social consensus) has some benefits, improving thought processes and critical/divergent problem analysis (De Dru & West 2001)
* Attitude Strength:
  + Dimensionality: Attitude strength has multiple dimensions, wherein attitude importance, attitude accessibility, and attitude commitment are all distinct constructs, each affected differently by subjective experience (Bizer & Krosnick 2001; Holland et al., 2003)
  + Resistance to Persuasion: Resistance can originate due to both cognitive and affective reactions (Fuegen & Brehm 2004). Sociably desirable strategies that attack an appeal are more likely to be used than those that derogate the source of the appeal (Jacks and Cameron 2003).
    - Longitudinal studies show persistent effect of counterargument over time, but only a delayed impact of strengthening the existing attitude (Pfau et al., 2004)
    - Notably, resistance strengthens initial attitudes to the extent that it is seen as succeeding even in the face of strong messages from expert sources (Tormala and Petty 2004a; Tormala and Petty 2004b). This relates to expert inoculation from morally convicted positions.
  + Ambivalence: How do we process neutral attitudes vs positive or negative ones?
    - Defined as – Attitudes have two separate dimensions (instead of one biopolar one), but can also be seen as a distinct aspect of attitude strength.
    - Information processing is more effortful at high levels of ambivalence vs strong levels of love OR hate (van Harreveld et al., 2004)
    - High levels of ambivalence are associated with weaker attitude/behavior relationships and greater openness to change.
    - The experience of ambivalence motivates the search for corrective information, making those with ambivalent attitudes ESPECIALLY susceptible to consensus influence (Hodson et al 2001)
* Attitude-Behavior Consistency: This is important because attitudes PREDICT behavior… obviously can’t go crazy on this, but we need to follow up with it b/c it is the essential assumption that undergirds the value of attitude change.
  + What moderates attitude-behavior consistency? Strong behaviors were more predictive of actual behavior, and were stable irrespective of the behavior exhibited between two attitude assessments (e.g., does this attitude change even if I couldn’t do the thing?) (Holland et al., 2002b)
  + Self-Interest: Strong attitudes might not result in behavior if doing the behavior violates the norm of SELF-INTEREST (Ratner and Miller 2001). Fear of publically supporting favored causes where there is no personal stake (e.g., student protests against Israel) can prevent nonvested individuals from acting on their interests.

Bohner & Dickel 2011: Annual Review – Attitudes and Attitude Change

Overall coverage of research between 2005-2009

* Measuring Attitudes: Self-report scales are the most common way, asking a respondent to evaluate an object using likert scales.
  + Implicit attitude measures also exist, for attitudes that people may try to hide or are unable to assess.
* Attitude Change: Distinction between attitude FORMATION and attitude CHANGE
  + Attitude change involves retrieval of stored evaluations (how did we feel about this before?) and consideration of new evaluative information.
* Persuasion: XXXXX

Okeefe 2016: Persuasion

* Three general categories of theories: Theories of attitude/psychological processes, theories of ‘voluntary action’, and theories of ‘persuasion/social influence’.
  + In general – adapting (tailoring/adjusting etc.) persuasive messages to their audiences is key
    - Emphasizing that this is the exact theoretical reason we’re trying to see for what issues ‘social’ pressure works well (using social pressure as our form of persuasion) or how different degrees of moral conviction can be effective.
* Models of Attitude/Psychological Processes
  + Belief-based models of attitude – attitude towards objects are due to salient beliefs about the object, held with varying degrees of strength/certainty. Overall attitude is a JOINT FUNCTION created by evaluating each salient belief/degree of belief strength.
    - Can we change the evaluation of an existing salient belief? E.g., increase the desirability of some attribute of an object, making the attitude more positive.
    - Persuader might influence the strength of an existing salient belief; E.g., persuader might make it seem implausible that an object has undesirable characteristics.
    - The set of ‘salient beliefs’ may be changed – adding a new belief of the appropriate type, or changing the relative salience of existing beliefs (e.g., reminding subject about a positive attribute that they had forgotten)
      1. For example, regular exercisers and non exercisers evaluate the benefits of exercise similarly, but differ in the perceived likelihood that exercise produces such benefits!
      2. Thus… persuade non-exercisers by explicitly telling them the likelihood of obtaining those benefits, rather than their desirability.
  + Functional analysis of attitude: Attitudes serve various psychological functions, thus attitudes that serve symbolic functions (e.g., moral beliefs), can be much more difficult to change (Carpenter, Boster, & Andrews, 2013)
  + Dissonance theory: Reduction of dissonance can result in selective information exposure – people prefer to be exposed to information that is consonant with their current beliefs, rather than dissonant information.
    - Belief change through ‘Hypocrisy Induction’ – Arousing dissonance, that is THEN reduced by undertaking the desired action. Works well when people have the desired attitudes but do NOT consistently act for those attitudes.
    - Making the discrepancy between attitudes and actions salient to the person can arouse dissonance, which is then reduced through behavioral change.
      1. Household energy reduction study, for houses that pledged to reduce energy use, but were unsuccessful, once reminded (with energy consumption information AND emphasizing their pledge) reduced their consumption significantly more than those who got only reminder, only feedback, or no treatment
* Models of Voluntary Action: Attempts to identify what factors influence voluntary action, not necessarily directly thinking about persuasion.
  + Reasoned Action Theory: the first step to voluntary action is intention, what things influence these intentions (Fishbein & Ajzen, 2010)
    - Four factors determine intention: Attitude towards behavior and evaluation of the action, ‘injunctive norms’ (most people who are important to me think I should/should not do X), ‘descriptive norms’ (Most people do X, most people in my community do X), and the last is personal perceived behavioral control (self-efficacy).

Albarracin and Shavitt 2018 – Annual Review: Attitudes and Attitude Change

Overall coverage of attitude change and attitudes between 2010-2017

* Attitude research began in 1918 (Thomans & Znaniecki), and 1923 (Jung)
  + Attitudes have a subject, which can be an object, person, or abstract idea
  + Applicable for marketing, advertising, political behavior, and health
* Attitude can be measured with direct report, or inferring from evaluative reactions (implicit measures)
  + Attitudes in context w/ people
  + Attitudes in context of social relationships
  + Attitudes in a sociohistorical context
* Attitude Change: Attitude change is important for a variety of reasons – how do we investigate attitude change?
  + Are attitudes defined as ‘fixed’ memories, momentary evaluations, or a hybrid?
  + Likely they are a hybrid of both (Albarracin et al., 2005)
  + If we measure attitudes at two times, how much difference CAN we even notice?
    - Merely imagining contact with an ‘outgroup’ (Miles & Crisp, 2014) reveal that 14% of participants were likely to have positive attitudes than those who did not imagine.
    - Meta-analysis indicates (Lemmer & Wagner, 2015) showed that field interventions can reduce inter-group conflict between two different ethnic groups, 11% increase (50 to 61) of positive attitudes. Some attitudes (even those difficult to change) can be moved!
    - Risky sexual behavior intervention changes attitudes (Tyson et al., 2014), 60% had changed w/ intervention, vs 50% without intervention.
  + Attitude change based on interventions/messages GENERALLY average around d = 0.22, a small effect, but which is durable.
  + Attitude change directly relates with climate change denial – as strong evidence fights against public disbelief.
    - However… we see success in health dangers of smoking.
* Context of Values: Defined as attitudes towards ‘abstract’ entities (e.g., Deontology, Utilitarianism, Universality etc.)
  + Focused messages that leverage certain types of morals, e.g. ‘individualization’ “Show your love for all of humanity and the world in which we live by helping to care for our vulnerable natural environment” (Wolsko et al. 2016, p. 9)
  + Alternatively for ‘binding’ values “Show you love your country by joining the fight to protect the purity of America’s natural environment”
  + Liberals are convinced regardless of the message, but conservatives had MUCH stronger intention aft er getting the ‘binding’ message vs the control or individualization message.
* Context of goals: General action goals/Inaction goals can affect the impact of belief change (e.g., are you trying to get me to DO something, or STOP doing something?)
  + Priming with action or inaction words can directly make either action or inaction goals more likely to succeed (Albarracin & Handley 2011)
* Context of emotions: Emotions are relevant to MANY attitude domains (Clore & Schnall 2005), but especially relates to political attitudes.
  + Asking individuals to respond to information “as if they were scientists, thinking analytically in a cold and dispassionate way”, was successful at reducing anger towards Palestinians after seeing news of Palestinian aggression (Halperin et al., 2013)
* Context of DISPOSITIONAL ATTITUDES: Some people’s attitudes can be similar across different objects!
  + Shared affective traits can give information about attitudes regardless of whether the attitude object is a new movie, the president, or a toaster.
  + Individuals can tend to generally ‘like’ or ‘dislike’ stimuli (e.g., tend to be ‘Haters’ or ‘Lovers’), which persists with high internal consistency (Hepler & Albarracin 2013).
    - These dispositions can predict unknown attitudes (including towards completely novel objects)
    - E.g., Those who generally like objects also liked a new object, but those who dislike objects, disliked the new one.
* Social Context: What is the source of the message?
  + Alignment between communicator and audience ‘power state’ enhances persuasion (Dubois et al., 2016), ‘high power’ communicators prioritize competence, which is well received by high power audiences, low-power communicators prioritize warmth, which is more persuasive to low-power audiences.
  + Social Media: Network effects, e.g., how persuasion works through social connections have two components.
    - Friends are SIMILAR due to social selection.
    - Friends can BECOME MORE SIMILAR due to interactions w/ others or social influence.
    - In social networks, similarity in attitudes towards ‘discipline’ was due to influence rather than selection (de Klepper et al., 2010), those who have attitudes similar to friends, because they had become friends w/ others who had then influenced them
      1. This is STRONG evidence for the potential benefits of social influence, beyond just ‘echo-chamber’ aggregation. Indicates that you CAN influence your friends, even if you disagree initially.
    - Similarly, sharing similar ‘negative attitudes’ (e.g. we BOTH hate the Yankees) increases familiarity between people (Weaver & Bosson 2011)
      1. Attitudes both influence relationships, and can be altered for self-presentation purposes
* Historical Context:
  + ‘Generational Context’ – attitudes that change from/are reflective of ‘broad sociocultural’ changes from certain time periods.
    - Reflective of the larger cultural context on individuals.
  + Political polarization has increased significantly in 12th graders (youths) in the 2010s, than in the prior decades (Twenge et al., 2016)
  + Climate and Historical events can provide context:
    - 2007-8 Financial crisis affected political attitudes, increasing economic conservatism in New Zealand (Milojev et al., 2015)
    - South African Desegregation (1973 to 2009) resulted in English speaking whites having MORE negative attitudes towards blacks through the WHOLE period (Mynhardt 2013)
    - Election surveys from 1992-2008 in the US, had increased White beliefs in Black intelligence and work ethic, although whites are seen as more positive than blacks still. This attitudinal shift was described as the “Obama Effect”, showing how ethnic diversity in positions of power can change social attitudes (Welch & Sigelman 2011).

Chan 2017: Countering False Beliefs

* How do we change false beliefs about science?
  + Increases in retractions of science is NOT due to increases in scientific misconduct, just public awareness and greater attention.
* “Autism has become an epidemic. Twenty-five years ago, 35 years ago, you look at the statistics, not even close. It has gotten totally out of control. … Just the other day, 2 years old, 2 and a half years old, a child, a beautiful child went to have the vaccine, and came back, and a week later got a tremendous fever, got very, very sick, now is autistic.” – Donald J. Trump – Republican Presidential Debate, CNN 2015
  + This asserted link is outright bogus, an example of how false belief can lead to unnecessary health risks and challenge attitude change (Lewandowsky 2016; Ranney and Clark 2016)
  + Notably, scientific consensus has NOT produced public consensus, with 6% believing that vaccines cause autism, and over 50% being “unsure” about the presence or absence of a relationship (Newport et al., 2015)
    - Directly resulting in a 1.7x increase in US refusal to vaccinate children (Smith et al., 2008)
* Timely retractions are a good recommendation to address misinformation
  + Ensure that retractions themselves are detailed – distinguishing honest error from fraud, and be clear about where the research area is still trustworthy
  + Ensure citations are linked to the retraction! Permanently linking this reduces the spread of misinformation.
* Communication Strategies for overcoming false beliefs.
  + ‘Correct information is not sufficient for a causal explanation to fill the discrepancy in the mental models (Johnson and Seifert 1994; Wilkes and Leatherbarrow 1988).
    - You can’t just say X information is incorrect, instead you must REPLACE it with new and credible information.
  + Individuals often PERSIST in false beliefs because of mental models of misinformation, strengthened by the PROCESS of generating arguments supporting it.

## Utilitarian and Deontological Orientation

* Utilitarian and Deontological orientation influence how individuals perceive issues, as well as concepts of ‘right’ and ‘wrong’ (Brady and Wheeler, 1996).
  + This directly affects openness to belief change and the effectiveness of persuasion.
    - Utilitarian reasoning can be defined as ethical judgement based on outcomes, not intentions.
    - In contrast, Deontological reasoning can be defined as ethical judgement based on whether or not behavior adheres to a preconceived set of ‘rules’, this includes concepts like ‘rights’, ‘ideals’, and explicitly recorded law.
* Many highly polarized beliefs are rooted in utilitarian and deontological values (Tseng, 2021).
  + During the COVID-19 pandemic, healthcare professionals were forced to adopt utilitarian policies (e.g., mandatory vaccination), which many found unacceptable. This has resulted in ‘moral injury’ arising from the conflict between individual deontological moral judgement and organization/country level utilitarian moral judgements (Akram, 2021).
  + Arguments for the use and disuse of capital punishment often fall on deontological/utilitarian lines (Steiker, 2006).
    - Deontology: Killing an innocent is never an acceptable trade-off, thus the death penalty is unacceptable; Death penalty can prevent—through incapacitation of the offender or general deterrence—the loss to murder of even one innocent life, then it is a morally justified or perhaps even morally required penal response (e.g., any numbers of killers should die, if it saves one innocent)
    - Utilitarianism: The death penalty is a waste of resources (monetary cost) thus, it should not be done.

Utilitarian and deontological orientation influences how individuals perceive issues, as well as concepts of ‘right’ and ‘wrong’, which directly affects openness to attitude change as well as the effectiveness of persuasion (Brady and Wheeler, 1996). Utilitarian reasoning can be defined as ethical judgement based on outcomes, not intentions. In contrast, Deontological reasoning can be defined as ethical judgement based on whether or not behavior adheres to a preconceived set of ‘rules’, this includes concepts like ‘rights’, ‘ideals’, and explicitly recorded law.

Many highly polarized beliefs are rooted in utilitarian and deontological values, and thus are especially important when considering belief change (Tseng, 2021). For example, during the COVID-19 pandemic, healthcare professionals were forced to adopt utilitarian policies (e.g., mandatory vaccination), which many found unacceptable. This has resulted in ‘moral injury’ arising from the conflict between individual deontological moral judgement and organization/country level utilitarian moral judgements (Akram, 2021). In another context, arguments for the use of capital punishment are often based on deontological/utilitarian reasoning (Steiker, 2006). A deontological argument would be that killing an innocent is never an acceptable trade-off, thus the death penalty is unacceptable. Alternatively, that if the death penalty can prevent—through incapacitation of the offender or general deterrence—the loss to murder of even one innocent life, then it is a morally justified (or even required) penal response (e.g., any numbers of killers should die, if it saves one innocent). Conversely, a utilitarian argument would be that since the death penalty is a waste of resource (monetary cost), it is morally unjust to use it.

## Social Consensus

* Even if the individual does not ‘intuitively’ agree with the position, conforming to the majority opinion is extremely typical (Asch, 1956; Deutsch M, 1955)
  + E.g., In circumstances where social consensus is high, personal judgement of ethicality is not needed, when social consensus is low, individual moral judgement occurs instead.
  + E.g. How ethical is it to use AI to write a cover letter for a job? What about to write a recommendation for an employee? As it’s new ground, there has not been any social consensus, thus, individuals must judge it’s moral worth for themselves.
  + These effects have been shown to reliably impact topics such as climate change (Goldberg, 2019) and weight discrimination (Farrow, 2009)
* Social Consensus (in certain subgroups) can result in significant propagation of misinformation.
  + For example, stereotypes about the existence of “death panels” removing healthcare for the elderly or sick in the Affordable Care Act, has been seen as plausibly true even though thorough research has shown that description as factually wrong (Frankford, 2015; DiJulio, Firth, and Brodie 2014)
  + The effects of social consensus can occasionally even outweigh expertise, as a survey of 9,972 otolaryngologists, conducted in 2013, found that 40 percent of the surgeons who are Republicans believed that the ACA created death panels, a percentage that stands in great contrast to the finding that only 8 percent of Democrats shared that belief (Rocke et al. 2014)
    - I.e. It is patently absurd that medical professionals believe this mistruth, yet significant social consensus amongst republicans leads this belief to persist, even amongst republican medical professionals.
* Some prior research has been done on the interaction between social consensus and deontology/utilitarianism – indicating that higher levels of deontological orientation results in less conformation to social consensus (Pincus, 2014)
  + However… Pincus was not able to directly manipulate the level of social consensus, thus directly testing this interaction has not occurred.
* Social Judgement Theory states that reactions to belief change are centrally influenced by how the message recipient judges the position being advocated – notably, what is acceptable and unacceptable shift depending on how personally significant the issue is to the person (centrality of an issue is similar and analogous, but not the exact same as moral conviction) (Sherif, Sherif, & Nebergall, 1965)
  + Indicates that highly ego-involved receivers (people with strong moral convictions?) are difficult to persuade (Okeefe, 2016)
    - They only accept a very narrow range of options, and are noncommitment (rejecting many possible alternative positions)
    - They can have perceptual distortion (e.g., the perceived position and meaning for a message can be different for those w/ different views on the issue)
* Social Consensus overlaps with Skitka’s “Domain Theory of Attitude” in that social convention is seen as while the influence of social consensus on normal convention is understood – strong moral conviction ‘inoculates’ individuals against the effects of social consensus (Skitka, 2021).

## Moral Conviction

Moral conviction is a distinct element of attitudes that impacts belief change and openness to persuasion, in a way that is psychologically distinct from other attitude constructs (e.g., attitudes that are strong or certain are not necessarily highly moralized). For example, Wright and colleagues (2008), found that individual differences in moral conviction uniquely impact variables such as social distancing. Fundamentally, moral conviction reflects fundamental beliefs about what is ‘right or wrong’ about a given attitude object, and beliefs rooted in moral conviction are perceived as objective and universal (Morgan & Skitka, 2020). In practice, this means that differing levels of moral conviction consistently predict how much an individual believes that their attitude about an issue is ‘objectively true’ and ‘universally applicable in all cases’. Conversely, beliefs with low levels of moral conviction are viewed as subjective preferences where legitimate disagreement is acceptable (Skitka, 2010). An example of how this applies is that individuals make faster evaluations (as measured through the Implicit Association Test) about if a given behavior is universally right or wrong, when the behavior is first evaluated as ‘morally’ right or wrong, as compared to being pragmatically ‘good/bad’ or ‘pleasant/unpleasant’ (Van Bavel et al., 2012).

Notably, there is significant disagreement on what beliefs people hold with moral conviction. Relatively few topics (e.g., rape, incest, executing the mentally disabled) are ‘universally’ viewed with moral conviction. It is instead more common for issues (e.g., gun ownership, vegetarianism) to only be held with moral conviction for a subset (in this example, NRA advocates and PETA, respectively) of the population (Wright et al., 2008). Conversely, there are likewise few beliefs that are ‘universally’ viewed as nonmoral (e.g., choosing to exercise, taste in music, etc.). This indicates that for every individual, at least some of their beliefs can be viewed through the lens of moral conviction in order to affect attitude change.

Prior literature in the field of attitude formation reinforces the idea that moral conviction directly affects belief change. Carpenter and colleagues (2013) functional attitude theory states that beliefs for morally convicted attitudes that serve ‘symbolic’ functions (e.g., what values or moral beliefs the attitude symbolizes) are more easily changed when emphasizing image-based considerations and downplaying the intrinsic qualities of the attitude object (e.g., recycling to look environmentally conscious versus recycling to get some monetary compensation). Another vital interaction between moral conviction and attitude change is the ‘inoculation’ of individuals against the effects of peer and authority influence. Individuals that feel strong moral conviction about a belief do so because of a ‘greater moral purpose’ underlying the structures of authority, rather than the authority themselves (Kohlberg 1976, Rest et al. 1999). For example, strength of moral conviction about physician-assisted suicide, instead of prior perceptions of supreme court legitimacy/fairness, predicted whether or not an individual believed a supreme court judgement about physician-assisted suicide was reasonable (Skitka, 2009). In another case, levels of moral conviction predicted resistance to peer influence with regards to accepting the use of torture to deter terrorism (Aramovich, 2012). People continue to uphold morally convicted viewpoints, even when explicitly challenged by peers or authorities.

Given how much moral conviction impacts attitudes, directly manipulating moral conviction is a promising avenue to increase belief change. While some evidence indicates that the degree of perceived moral conviction can change, the mechanisms through which it does so are debated. For example, historical evidence indicates that some things that were once considered preferences (cigarette smoking in the 20’s-30’s) can evolve into morally weighted judgements (smoking seen as an ‘uncouth’ habit), that can even have real consequences (e.g., public smoking being banned in many venues) as the society around the concept changes (Rozin, 1999). In comparison, experimental manipulation of individual perceptions of moral conviction have found some success when using framing effects that center on arguments containing harm, fairness, or disgust, or alternatively, framing issues as ‘rights’ necessary for society (Kodapanakkal, 2021; Clifford, 2017; Wisneski & Skitka, 2017). However, this evidence is somewhat mixed, as Clifford and colleagues (2017) were unable to reduce moral conviction on ‘food politics’ e.g., support for factory farming, genetically modified food, animal welfare)