Norm Perception as a Vehicle for Social Change

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Abstract

How can we change social norms, the standards describing typical or desirable behavior? Because individuals' perceptions of norms guide their personal behavior, influencing these perceptions is one way to create social change. And yet individuals do not form perceptions of typical or desirable behavior in an unbiased manner. Individuals attend to select sources of normative information, and their resulting perceptions rarely match actual rates of behavior in their environment. Thus, changing social norms requires an understanding of how individuals perceive norms in the first place. We describe three sources of information that people use to understand norms—individual behavior, summary information about a group, and institutional signals. Social change interventions have used each source to influence perceived norms and behaviors, including recycling, intimate-partner violence, and peer harassment. We discuss conditions under which influence over perceived norms is likely to be stronger, based on the source of the normative information and individuals' relationship to the source. Finally, we point to future research and suggest when it is most appropriate to use a norm change strategy in the interest of behavior and social change.

Norm Perception as a Vehicle for Social Change

Researchers, policymakers, and practitioners do their best to measure actual rates of behaviors in a community, such as the number of people who engage in recycling, domestic violence, voting, or peer harassment. These rates are often discussed as the community's "norm"—e.g., *"it is the norm to recycle here; most citizens recycle,"* or, *"domestic violence is not normative in this community; only 2% of residents report that domestic violence is acceptable."*

Psychologists focus on measuring a different kind of norm—not the actual norm, but community members' subjective perceptions of the norm. There are two reasons for this focus on subjective perceptions. First, unlike statisticians and policymakers, the average person does not know the actual rates of behaviors or opinions in their community, such as recycling or approval of domestic violence. Individuals' subjective perceptions of norms are not derived directly from a comprehensive survey or a census. Instead, individuals have subjective perceptions of norms, based on their unique and local experience. They attend to select sources of normative information, and their resulting perceptions rarely match actual rates of behavior in their environment. Second, subjective perceptions of norms can guide individuals' opinions and behaviors. Thus, when psychologists attempt to change actual norms in a community, they design interventions that target community members' *perceptions* of these norms. In this paper, when we discuss "norms," we will be referring to these subjective perceptions, not to actual norms. Our hope is that a better understanding of the origins, function, and stability of perceived norms will lead to interventions that are able to ultimately change actual norms—that is, actual community-wide patterns of behavior.

This review highlights when and why psychologists view norm *perception* as a vehicle for social change. We review interventions that were designed to influence individuals' perceptions of the norm so as to change their behavior. Most of these interventions were levied at individuals, and outcomes were measured in terms of their individual opinion and behavior change. Few investigators have studied how these kinds of interventions "scale up" to change community-wide perceptions of norms and behavior (Allcott, 2011; Paluck, Shepherd, & Aronow, 2014). Researchers have proposed various models for how individual-level interventions might scale to a community level, via a change in a critical proportion of individuals or following a certain degree of change among community members (e.g., Valente, 2005). Evaluating these different models is beyond the scope of this review. We focus on changes in perceived norms and behaviors at the individual level to understand processes that could have implications for the collective level.

A few basic observations about human sociality and psychology remind us why individuals have subjective perceptions of the norms in their community, and cannot directly perceive actual rates of behavior or opinion. Individuals have limited attention and access to information about what others do and think. They may not interact with everyone in their community, nor interact to the same degree, which limits their direct observation of, for example, how many community members recycle. Individuals can only observe what other community members do in public, and they have unreliable information about what others actually think. But even if individuals could observe the behaviors and opinions of all their fellow community members, they may still draw incorrect conclusions about what is common. People are egocentric thinkers (Ross, Greene, & House, 1977): they may extrapolate from their own behavior when thinking about others, and conclude that their community members' recycling

behavior is similar to their own. People are also cognitive misers (Fiske & Taylor, 1984): they may use mental shortcuts, and generalize the recycling behavior of a community member who is easy to call to mind to the behavior of all community members.

Despite these limitations on perception, individuals are motivated to understand what is normative in the communities to which they belong. This motivation arises from distinct but related desires to be accurate about social facts, to feel that they belong to their community, and to avoid social rejection from their community for deviating too far from the norm (Blanton & Christie, 2003; Cialdini & Goldstein, 2004). Individuals' subjective perceptions of norms become a reality and a guide for their own behavior, even when the perceptions are inaccurate. Adherence to a perceived norm, therefore, is a more complex psychological phenomenon than simple observational learning (Bandura, 1971) or behavioral mimicry (Chartrand & Bargh, 1999).

To change behavior, many psychologists attempt to influence perceptions of norms rather than other precursors to behavior, such as attitudes. Distinguishing attitude change from norm change is critical, because they involve different strategies and have different results. Attitude change campaigns attempt to change how *you* feel about a behavior ("I love recycling"), as opposed to norm change campaigns that attempt to change your perception of *others'* feelings or behaviors ("Recycling is really common in my town" or "The majority of people in my town love recycling"). Psychologists sometimes prioritize normative influence over attitudinal influence because individuals' normative perceptions can be more malleable than their attitudes. An individual's attitudes may have developed over a long time and may be closely linked to personal experience or to other well-developed beliefs, such as religious or political ideology. Attempts to counteract personal experience or longstanding beliefs can be more difficult, and

may also take more time and thus expense. Additionally, changed attitudes are not always reliable precursors to changed behaviors (Wicker, 1969).

Rather than attempting to change attitudes, social change interventions can focus on shaping community members' perceptions of the norm. Norm change interventions can make use of the fact that individuals perceive norms using certain types of input from their environment; in particular, other individuals' public behavior, summary information about a group, and institutional signals. Instead of persuading individuals that recycling is important and hoping that they will then recycle, a norm change intervention may, for example, expose people to a popular peer who recycles, provide people with information that most of their peers recycle, or advertise new recycling guidelines from an important and trusted community institution.

For the rest of this review, we describe three key sources of norm perception that norm change interventions target—individual behavior, group summary information, and institutional signals. We discuss interventions that use one of these sources to modify behavior through changes in perceived norms. Characteristics of these three sources of norm perception and individuals' relationship to each source can determine whether norms and behavior will change. As we review these conditions under which norms and behavior are most likely to change, we offer ideas for modifying normative information in the environment. We focus on individuals, to examine the psychological processes that lead to shifts in their perceptions of norms and in their subsequent behavior. In the interest of goals to scale these normative interventions to reach entire communities, we highlight the social processes that may diffuse perceived norms and behavior throughout a community. There is a great deal that we do not yet know about influencing perceptions of norms, and the outcomes of norm change interventions. We end by suggesting the

most important next steps for research, and proposing ideas about when it is most appropriate to use a norm change strategy in the interest of behavior and social change.

The Subjective and Dynamic Perception of Norms

Psychologists have long demonstrated the human tendency to bring our behavior in line with social norms (e.g., Asch, 1952; Sherif, 1936), which are defined as our perceptions of what is typical or desirable in a group or in a situation (Miller & Prentice, 1996). Humans are especially motivated to understand and to follow the norms of groups that we belong to and care about, known as *reference groups*. A reference group's norms may be influential for some behaviors and not others (Miller & Prentice, 1996). For example, when college students decide whether and how much to drink, they are more likely to consider the norms of their peer reference group (their fellow college students) than the norms of their parents (Perkins, 2002), even though they may prioritize their parents' views for other kinds of decisions.

Individuals learn about the norms of their reference groups over time, updating their impressions as they interact with their group or learn about their group through other sources. In other words, norm perception is a dynamic process—norms are not static rules for behavior, learned once and internalized for posterity (Miller & Prentice, 1996; Paluck & Shepherd, 2012). The public behavior of individuals in our reference group (learned by direct personal observation or indirectly by gossip or rumor), summary information about group opinions and behavior (indicated by the group's voting tallies, or other announcements about the group), and institutional systems (indicated by public rules, punishments, and rewards) all update our impressions of what the group typically does or what the group values. For example, when a person notices a group member recycling, reads a trend story in a newspaper about how a growing majority of her peers recycle, or learns about a new rule requiring recycling in her

community, she infers that recycling is typical and desirable for her group. When she too recycles or discusses that she favors recycling with other group members, her behavior then serves as information about the norm as well, forming a cyclical pattern in which norms are reproduced over time (Paluck & Shepherd, 2012; see also Markus & Kitayama, 2010).

Because normative perception is a dynamic process, there are many opportunities to shape its course. To influence perceptions about what behaviors are typical and desirable for a reference group, interventions can change certain group members' public behaviors, present new summary information about the group, and issue new signals from institutions that are important to the group.

Sources of Norm Perception

Group Members' Behavior Can Shape Perceptions of Norms

The behavior and expressed opinions of other individuals are a major source of information about norms for a group or situation. Previous research has argued that certain individuals, called *social referents,* are particularly influential over others' perceptions of norms (Paluck et al., 2014; Rogers, 1962; Shepherd, 2014). Individuals weight social referents' behavior more heavily than others' behavior when they form their impressions of the norms of their reference group. Social referents are psychologically salient—their beliefs and behaviors are simply noticed more than others. They may or may not be high in status and may or may not be leaders. Their salience derives from their personal connections to the perceiver, and their number of connections throughout the group. Our research has specifically identified these influential individuals as being widely known across a group's social network or within a clique inside of the network (Paluck et al., 2014; Paluck & Shepherd, 2012; Shepherd & Paluck, 2014).

In a field experiment conducted by Paluck and Shepherd (2012), social referents in an American high school were identified at the start of the school year using social network analysis. Specifically, all students at the school answered the question, "Which students at this school did you choose to spend time with this past week?" Social referents were subsequently identified as students with the highest number of nominations from other students across the network ("widely knowns") or students with high numbers of nominations from a closed cluster of students within the network ("clique leaders"). The investigators randomly assigned a subset of these social referent students to be trained to model anti-harassment behaviors during the rest of the school year. For example, the anti-harassment social referents were encouraged to speak at a school assembly about the importance of refraining from the cycle of conflict, perform skits to illustrate ways of speaking out against harassment, talk to peers about ways to report harassment, and sell wristbands with an anti-harassment message (social referents who were not randomly assigned to the intervention were not encouraged to do anything). Analyses of all students' reported norms and behavior at the end of the year demonstrated that students with more social network ties (i.e., with more face-to-face or online exposure) to the anti-harassment social referents were more likely to perceive that harassment was not considered desirable by other students at their school, and were less likely to be disciplined for peer conflict according to school records.

Ideas about the power of influential individuals to shape social norms have long been discussed in the literature on diffusion of innovations. In this literature, influential individuals are the early adopters of new ideas and practices, adopting them from sources such as the mass media and propagating them throughout their social network via personal endorsements (Katz & Lazarsfeld, 1955; Rogers, 1962). Many programs, such as interventions promoting healthy

behaviors, seek to identify these early adopters through diverse methods such as surveys, nominations from group members, or group observation (e.g., Banerjee, Chandrasekhar, Duflo, & Jackson, 2014). Diffusion-of-innovation programs provide these individuals with materials to disseminate among their groups to promote new norms and behaviors (Valente & Pumpuang, 2007).

Economists have found that individuals' engagement with new services such as agricultural technology, insurance, and retirement plans can increase their peers' engagement with the service (e.g., BenYishay & Mobarak, 2014; Cai, de Janvry, & Sadoulet, 2013; Duflo & Saez, 2003). However, some studies find the peer influence to be short-lived, or find that peers also learn from seeing the *negative* experiences of individuals who adopt a new service (e.g., Ahuja, Kremer, & Zwane, 2010; Miller & Mobarak, 2014). These studies do not measure the effects of service adoption on peers' perceived norms; in some cases the observed peer influence may be driven more by learning new information from a peer. The studies are consistent, however, with the prediction that early adopters can introduce and diffuse new norms across their social network.

In some cases, individuals become sources of normative information through a position of leadership. While leaders may shift group members' behavior by demanding obedience, they also have the power to shift group behavior by shaping group norms. A body of research on leadership and social identity proposes that leaders influence group norms to the extent that the leader is perceived to be legitimate, fair, and prototypical of the group (Hogg, 2010). To be prototypical of a group is to be considered a good reflection of the group identity, and similar to many group members. Under these conditions, a leader who is "leading by example" is interpreted as reflecting the norms of the group as they are or as they should be (Drouvelis &

Nosenzo, 2013; Hogg & Reid, 2006). Having a leadership position may coincide with being a prototypical group member in some cases, but not others. However, both of these qualities are predicted to render an individual important, relevant, and salient to their fellow group members, and thus a source of information about group norms (Hogg, 2010).

In an organizational context, for example, leaders have the potential to influence subordinate employees' behavior via the employees' understanding of workplace norms, without directly asking employees to change their behavior. Observational research has demonstrated that by engaging in pro-environmental behaviors such as turning off lights that are not in use or printing double-sided, a leader demonstrates to employees that these behaviors are expected and valued (Robertson & Barling, 2013). Similarly, the design firm IDEO seeks to shape leaders' collaborative behavior in order to signal that collaborative help is part of the "culture" of its work environment (Amabile, Fisher, & Pillemer, 2014). During a typical team brainstorming session at IDEO, a leader who is not critical to the meeting is advised to make an appearance to contribute to the brainstorming, thereby demonstrating to the group that helping behavior is desirable at the firm (Amabile et al., 2014).

Social referents can also be fictional. Research from psychology and communication suggests that the behavior of fictional characters in books, movies, and television may inform audience members' ideas about the kinds of behavior that are typical or desirable in their actual communities (Singhal, Cody, Rogers, & Sabido, 2003). Fictional social referents are particularly influential when they resemble people from the audience's actual reference group. Researchers and media practitioners have capitalized on this hypothesis and have purposefully attempted to change norms through fictional narratives. Sometimes termed "edutainment" (educational entertainment), they incorporate characters who model healthy, respectful, or safe behaviors into

popular media programs (Singhal & Rogers, 2002). The programs are a form of so-called social norms marketing, because the normative behavior is marketed to a large audience, ideally in a subtle, non-obtrusive manner that parallels the way individuals observe the behavior of social referents in real life (Paluck & Ball, 2010). When a media-based narrative is known to be popular, i.e., to be liked by many other people, its characters are expected to be particularly powerful social referents, in the same way that widely-known or prototypical individuals in real life reference groups are influential over perceptions of social norms (Chwe, 2003).

For example, radio soap operas in Rwanda and in eastern Democratic Republic of Congo (DRC) have aimed to reduce conflict by depicting likeable characters engaging in behaviors such as starting a youth coalition for peace and developing friendships across group boundaries (Paluck, 2009; Paluck, 2010). In a field experiment in Rwanda, one year of randomly assigned exposure to a reconciliation-themed radio soap opera, relative to a control soap opera about health, changed listeners' perceived norms and behaviors with respect to issues such as open dissent and cooperation (Paluck, 2009).

Social referents and leaders are not the only individuals in the group who can influence norm perception and behavior. Other group members may influence perceived norms, particularly when their public behavior calls attention to existing norms. In this case, the behavior of the observed individual brings the norm into "focus" (Cialdini, Reno, & Kallgren, 1990); their behavior reminds perceivers of the norm and demonstrates that the norm is relevant to the immediate situation or context (see also Krupka & Weber, 2009). This normative reminder and behavioral influence may happen when an observed individual acts in compliance with the norm or, potentially more powerfully, when the individual punishes another person for deviating from the norm.

In a series of studies, Cialdini, Reno, and Kallgren (1990) manipulated whether participants were in an environment where littering was descriptively normative or not, and then manipulated norm salience through an actor's littering behavior. In environments where littering was normative (there was already a great deal of trash on the ground), a stranger who littered in front of the participant increased the participant's own norm-consistent littering behavior. The same effect did not occur when the environment was clean—when littering was counter-normative. Clearly, the norm-consistent behavior cannot be attributed to behavioral mimicry, since participants did not adopt the actor's littering behavior when littering was at odds with the preexisting norm of the situation.

As Cialdini and colleagues' (1990) experiments demonstrate, a preexisting norm can be signaled by the physical environment. Broken windows theory posits that physical disarray and petty crime—such as vandalism, broken windows on buildings, and abandoned cars—induce the sense that disorder is common and accepted in a community, which in turn leads to higher rates of crime (Kelling & Wilson, 1982; Zimbardo, 1969). The theory led to policy changes in major American cities, but analysts have characterized the cleanup efforts as peripheral to the cities' lowered rates of crime (Harcourt & Ludwig, 2006; Levitt & Dubner, 2005). However, six field experimental trials in Amsterdam recently demonstrated that street disorder (operationalized as graffiti and abandoned shopping carts) in a normatively tidy environment led to higher rates of other kinds of public norm violations from pedestrians passing by, such as littering and stealing money from an envelope hanging out of a mailbox (Keizer, Lindenberg, & Steg, 2008). Leaving aside the veracity of broken windows theory, these studies combined with Cialdini and colleagues' (1990) experiments point to the importance of seeing vivid or face-to-face examples of other individuals' norm-consistent behavior, and to the power of combined sources of

normative information from group members and from the physical context (see also Croson &

Shang, 2010; Martin & Randal, 2008).

As mentioned above, individuals can also make a norm salient by punishing someone

who deviates from it. This punishment can take the form of a social sanction, such as distancing

oneself from the deviant individual, or other kinds of physical or material sanctions. Experiments

by game theorists show that individuals are willing to use their own money to punish others who

go against a norm of cooperation (Sigmund, 2010). Players who observe this punishment are

more likely to cooperate and less likely to defect in subsequent rounds. In randomly assigned

public buses in Kenya, Habyarimana and Jack (2011) posted a sign that encouraged passengers

to heckle drivers of minibuses who were driving unsafely. Passengers' heckling acted as social

punishment to enforce a safe driving norm, and was successful in reducing insurance claims

involving injury or death for minibuses in the treatment group.

Information About Groups Can Shape Perceptions of Norms

In addition to group members' behavior, summary information about the opinions or

behaviors of a reference group can influence individuals' perceptions of group norms. This

information is often presented or implied through social media statistics, newspaper reports, and

marketing campaigns. Even warning signs can imply what group members are doing through a

request to *stop* doing something. Psychologists frequently study social norm influence by

manipulating summary information about the group.

Presenting summary information about a group is in some ways the most straightforward

manipulation of a perceived norm, given that individual norm perception is a psychological

representation of summary information, for example: *how many* people recycle, *how often* my

group recycles, *how positively* my group feels about recycling, and how many people in my

group feel positively about recycling. Some interventions aimed at influencing norms simply

present individuals with new summary information about the group, hoping to replace the

individual's personal and subjective representation with this summary information. This kind of

intervention is a form of social norms marketing. Social norms marketing includes information

about the group's behavior or opinions distributed through posters, online or newspaper

advertisements, community events, television commercials, flyers, email, or other mass

communication materials (e.g., Perkins & Craig, 2006; Turner, Perkins, & Bauerle, 2008).

A long and well-known line of research tests the effects of advertising summary

information about a group's environmental behaviors. In one classic study (Cialdini et al., 2006),

visitors to Arizona's Petrified Forest National Park were randomly assigned to view one of four

different signs on a walking trail, stating that "[m]any past visitors have removed the petrified

wood from the park" (p. 8), that "the vast majority of past visitors have left the petrified wood in

the park" (p. 8), or pleading with them to leave the petrified wood or to refrain from removing it.

Visitors who saw the sign that alerted them to the stealing problem ("many past visitors have

removed the petrified wood from the park") stole on average more petrified wood souvenirs from

the trail compared to visitors who saw the other signs. While the intuition to alert groups to bad

behavior in their environment is strong and sensible, the social norms perspective shows that

these warnings work to portray the negative behavior as descriptively normative, thereby

licensing the norm-compliant negative behavior—in this study, stealing wood. Other examples

of negative summary information from the policy world include billboards warning people in

post-conflict zones that rape is prevalent in their community. According to Cialdini's research,

this kind of summary information would be expected to have the opposite intended effect by the

billboard's creators (Paluck & Ball, 2010). Descriptive norms, which describe typical behaviors, are a double-edged sword, as we will discuss later.

By the same token, describing positive behaviors as typical can promote the behaviors that interventionists desire. Goldstein, Cialdini and Griskevicius (2008) found that a sign providing hotel guests with the descriptive norm that most guests (specifically, "almost 75%") reuse their towels led to greater towel reuse than the same sign providing a standard message stressing the importance of environmental protection (see also van der Linden, 2013). Gerber and Rogers (2009) conducted two "get out the vote" phone-based experiments in New Jersey and California. In one condition, the phone script read by callers notified participants that voter turnout in their state was low and decreasing, and in the other condition, the script conveyed that voter turnout was high and increasing. The script conveying high turnout led to greater reported intention to vote among participants. Likewise, providing college students with summary information about fellow students' high or low endorsement of racial stereotypes changed participants' own endorsement of those stereotypes in the direction of the norm (Stangor, Sechrist, & Jost, 2001; see Mackie & Smith, 1998). Students who were led to believe that their stereotypes were in line with other students' level of stereotype endorsement were also more resistant to an attempt at changing their own endorsement. Other studies have shown that summary information about peers' accurate and timely tax payments (Behavioural Insights Team, 2012; Coleman, 1996) and peers' organ donation registration (Behavioural Insights Team, 2013) led individuals to bring their behavior in line with the norm.

In Colombia, Tankard, Paluck, and Prentice (2014) are conducting a field experiment to test the effectiveness of normative (vs. individual-oriented) information to encourage low-income women to work toward personal goals by saving their money in a bank account. Women

who were offered a savings account were informed during the initial savings account offer and in

subsequent SMS reminders that the savings account is common and valued among women like

them (normative version), or that it is a valuable individual project for them (individual-oriented

version). Differences in savings rates between these two randomly assigned savings-account

groups, the normative and the individual-oriented, can reveal whether providing summary

information about a reference group increases women's engagement with financial interventions

in comparison to individualized encouragement to save. Notably, in this environment savings

accounts are not currently common, so this study tests the introduction of a new norm. This

intervention is an example of how a norms intervention could target behavior that may trigger

desired downstream changes, in this case changes in women's self-efficacy, decision-making

power, and experience of intimate-partner violence.

One innovation psychologists have studied is the presentation of personalized

information about an individual's own behavior in comparison to the norm (i.e., social

comparison information). Specifically, these norm change interventions draw a comparison

between an individual's behavior and the average behavior of his or her reference group. A

number of social comparison interventions have been deployed with the hopes of reducing

individuals' energy use (Allcott & Mullainathan, 2010). In these studies, residents are presented

with descriptive norms about the recent electricity consumption of their neighbors as compared

to their own. A number of large-scale randomized controlled trials find that this normative

information motivates individuals to decrease their electricity consumption so as to meet

normative standards (Allcott, 2011; Costa & Kahn, 2013; Schultz, Nolan, Cialdini, Goldstein, &

Griskevicius, 2007).

It is important to note other potential limitations of social comparison information about norms. Descriptive norm information can backfire if individuals are out-performing the descriptive norm or already perceive the norm to be even further in the desired direction than the newly provided information. For example, individuals in Schultz et al.'s study (2007) actually began to use *more* electricity if they learned that they were using less electricity than the presented norm of their neighbors (see also Bhargava & Manoli, 2013; Fellner, Sausgruber, & Traxler, 2013). Adding evaluative feedback can eliminate this boomerang effect. For example, adding a smiley face image to indicate approval of the individual's high energy-saving performance relative to the presented norm prevented those individuals from using more energy following the personalized norm intervention (Schultz et al., 2007).

Social comparison information has also been used to reduce unhealthy behaviors such as binge drinking and drug use. Adolescents and college students often misperceive binge drinking and drug use as highly valued by their peers (Perkins, Meilman, Leichliter, Cashin, & Presley, 1999; Prentice & Miller, 1993). This form of false inference about peer attitudes based on one's perception of the norm is a form of pluralistic ignorance. Pluralistic ignorance is a phenomenon in which individuals comply with a norm but privately reject it, while assuming that other people's public compliance with the norm is indicative of their supportive private attitudes (Miller & McFarland, 1991; Prentice & Miller, 1993).

In a field experimental intervention aimed at deconstructing pluralistic ignorance, Schroeder and Prentice (1998) assigned college students to participate in one of two types of discussion groups about alcohol use. One type of discussion focused on individual decisions about alcohol use, and the other type exposed the pluralistic ignorance phenomenon by focusing on the relation between peer pressure to drink and individual decisions about alcohol use. Four to

six months later, students who participated in the pluralistic ignorance (vs. individual-oriented)

discussion reported drinking less. This early study paved the way for many subsequent

interventions combining personal feedback about a participant's own behavior with information

about how others actually behave, to address drinking behavior among college students (Lewis &

Neighbors, 2006) and later, to address other health issues like sun tanning (Reid & Aiken, 2013).

These types of social comparison interventions are often delivered through media such as

mailings and web-based programs (e.g., Collins, Carey, & Sliwinski, 2002; Doumas, Haustveit,

& Coll, 2010).

 Thus far we have reviewed interventions that give individuals private feedback

comparing their behavior with a group norm. Other interventions rely on public feedback, and

specifically on the motivational social pressure that is triggered by the awareness that group

members will be alerted to your degree of compliance with an existing norm. For example,

Gerber, Green, and Larimer (2008) found that voter turnout in an election was highest among

individuals who were told that their participation in an election would be publicized to neighbors,

compared to individuals who were told that their household would privately receive their voting

record, who were told that their turnout records were being monitored, or who were reminded of

their civic duty to vote. This intervention and those that replicated the effect later (Davenport et

al., 2010; Mann, 2010; Sinclair, 2012) relied on the existence of a strong prescriptive norm

(implying favorable judgment, not just typicality, of the voting behavior). Rather than shaping a

new perception of a norm about voting, it assumes that people believe it is shameful to be

revealed to others as a non-voter.

 Bursztyn and Jensen (2014) conducted a related study in which U.S. high school students

who were enrolled in both honors and non-honors classes were offered an online SAT

preparatory course. If they were offered the course during one of their honors classes, they were more likely to sign up if the decision to do so was public, compared to those whose decision was private. Critically, when such students were offered the course during one of their non-honors classes, they were *less* likely to sign up if the decision to do so was public, compared to private). These effects were larger for students who believed it was important to be popular in their school, supporting the explanation that students' decisions were driven by their desire to act in line with what they perceived to be accepted behavior in the relevant setting. The negative effect of making the behavior public in *non-honors* classes points to the importance of attaching public feedback to an existing prescriptive norm that is already in the desired direction.

Institutional Signals Can Shape Perceptions of Norms

A third source of normative information in the environment comes from institutions that govern, educate, or organize a reference group and their social interactions, such as governments, schools, and the mass media (Getzels & Guba, 1957; Hodgson, 2006; Silverblatt, 2004). An institution's decisions and innovations can signal which behaviors or opinions are common or desirable in a group. Institutions may change perceptions of norms directly, as when individuals make a direct inference about norms based on an institutional signal. Institutions can also change perceptions of norms indirectly, as when individuals observe a change in the incidence of a behavior due to an institutional change, and update their understanding of norms accordingly. We categorize this source of normative information as coming from institutions rather than from social referent leaders because many institutional actions are not identifiable with a sole leader, but rather with the institution in general, such as a ruling from a court. Like the other sources of normative information we have discussed, institutions both communicate norms and are affected by norms (Hodgson, 2006; Markus & Kitayama, 2010). For example, because one function of

the law is to express social norms, institutions such as legal systems can fruitfully *prescribe* certain social norms in order to move individuals' behavior in a desired non-criminal direction (Sunstein, 1996).

Although theoretical ideas about how institutions can signal new norms are intriguing, empirical support for causal change is currently lacking. Scholars studying institutional influence study changes in individuals' behavior and opinion following institutional change, but have not directly measured perceived norms as part of the change process. The extent to which perceived norms may be involved in this change process is an area for future investigation. For now, we review hypotheses regarding the relationship between institutional signals, individuals' perceptions of norms, and behavior.

Theories of social identity and the law lead us to expect that institutions are particularly effective sources of normative information when the members of the groups that they represent view them as legitimate. Indeed, the hypotheses that we discuss here likely apply only when the institution is perceived to be legitimate. Legitimacy has been defined as the combination of people's authorization of the institution to determine appropriate behavior, and people's trust that the institution will represent the interests of the group (Tyler & Jackson, 2014). Similar to an individual who is prototypical of a group, an institution that is perceived to represent or serve a group well gains credibility as a source of normative information (Hogg, 2010). For example, group members may infer that public support already exists for newer opinions and behaviors advertised by the institution (we discuss some examples below). Similar to the logic of highly connected individual social referents, part of institutional normative influence may also come from individuals' awareness that institutions are highly visible and simultaneously observed by many group members at once (Chwe, 2003).

The mass media is one example of an institutional source of normative information. Part of the perceived legitimacy of the mass media derives from individuals' belief that it is run by a society's elites (Zaller, 1992). Another part of the mass media's influence may stem from individuals' implicit understanding that mainstream media seeks to give the public what they want (Lazarsfeld & Merton, 1948; Zaller, 1999). Finally, new kinds of "crowdsourced" media sites like Wikipedia, where members of the public contribute content, may reinforce individuals' belief that the media reflects the beliefs and behaviors of the public (cf. Hindman, 2009). For these reasons, when mass media airs unorthodox content, such as transgender characters on television, consumers may infer that the content is publicly supported, in this case that transgender people are more numerous or accepted in society (Organ, 2010).

Institutional support for or denouncements of certain behaviors are not necessarily enough to influence perceptions of norms, or indeed to change actual rates of behavior (e.g., Pruckner & Sausgruber, 2013). When the Chinese government first denounced foot-binding in 1902 and 1912, the practice did not decline until other movements sprang up to socially reinforce the law (Appiah, 2010). Scholars debate whether court decisions are effective at bringing about changes in public opinion or behavior, with some suggesting they are not (Rosenberg, 2008) and others suggesting that they are effective when political movements coexist to mobilize individuals following the decision (Schacter, 2009). For example, Schacter finds little support for the idea that public opinion at the point of a court decision can alone determine how the public will respond to the ruling. The *Roe v. Wade* decision striking down abortion laws in 1973 was made during a time of rapid increases in public support for legalized elective abortion. Yet given the existence of anti-abortion groups that were prepared to mobilize against a ruling, the court decision helped to fuel the anti-abortion movements in the decades that followed (Persily, Egan,

& Wallsten, 2006). Notably, these institutional studies have not related court rulings and national laws to perceptions of social norms, which would help to inform our hypotheses about the process by which institutions may inform individuals' ideas about what is typical and desirable in their society.

Some research does suggest that institutions provide normative information through decisions and guidance. Although most citizens are not aware of and do not understand specific laws or rulings (Robinson & Darley, 2003), when institutions are legitimate, citizens may infer that the decisions of lawmakers comply with or drive the direction of the society (Jackson et al., 2012; Tyler & Jackson, 2014). For example, qualitative work has demonstrated that after a university administration introduced a ban on outdoor smoking on campus, students viewed smoking as less common and accepted at the school (Procter-Scherdtel & Collins, 2013). Students may infer directly from the ban that smoking must not be normative and indirectly that smoking is less normative because they observe fewer people smoking on campus. In another domain, panel data on a representative sample of citizens from Southern California demonstrated that individuals' attitudes toward same-sex marriage became more supportive following U.S. Supreme Court decisions in support of same-sex marriage (LaCour & Green, 2014; see also Tankard & Paluck, 2015). Future work directly measuring changes in perceived norms following court decisions could provide one explanation for the shift in personal attitudes.

Another way that institutions may influence perceptions of norms is through default or anchor choices for the group (Thaler & Sunstein, 2008). For example, a substantially larger proportion of citizens become organ donors when being an organ donor is presented as the "opt-out" default option rather than an "opt-in" choice that an individual must actively make (Johnson & Goldstein, 2003). When such a behavioral choice is made easily available via suggestion or

"anchoring," or is made automatic via a default, the vast majority of people choose that option because it takes more cognitive processing to adjust away from the choice than to accept it (Tversky & Kahneman, 1974). However, anchors and defaults may be powerful for another reason. Individuals may infer that an institution has set the behavior as the anchor or default because it is a typical or desirable behavioral choice for their group (Haggag & Paci, 2014; Johnson & Goldstein, 2003). To our knowledge, the influence of defaults and anchors on perceived norms has not been tested.

Institutions may also change perceived norms through innovation. When an institution introduces a new system or method, group members may infer that a certain level of momentum and support must exist to favor the change. For example, institutions that have recently included "transgender" as an option in addition to "male" and "female" on a form may lead group members to infer that transgender people are more numerous in the group and are more accepted by the group, compared to group members who only see "male" or "female" on a form (Tankard, Wu, & Paluck, 2015). Likewise, reserving political seats for women in India may signal that societal norms about gender roles are changing, although norms have not been directly measured in randomized controlled studies demonstrating that reservations for women do increase approval of female politicians (Beaman, Chattopadhyay, Duflo, Pande, & Topalova, 2012).

Thus far, we have reviewed three sources of information that inform individuals' perceptions of norms for a particular group: individual group members' behavior, summary information about the group, and institutional signals. We now turn to the conditions under which these sources of normative information may be particularly influential, meaning effective for influencing individuals' perceived norms and behavior and ultimately for leading to broader change across the social group.

When Are Norms and Behaviors Most Likely to Shift?

In this section, we identify five conditions under which interventions to shift norms and behaviors are likely to be more powerful. Not all conditions need to be met for a successful norm change intervention. We note when these various conditions have moderated the impact of interventions from various research projects to shift norms and behaviors.

When Individuals Identify with the Source of Normative Information

In general, an individual, group, or institution will only be an effective source of normative information to the extent that a person feels identified with the source (Festinger, 1954; Kim & Hunter, 1993; Wilder, 1990). For example, theory suggests that feeling a sense of comfort, friendship, and resemblance with characters in edutainment programs facilitates individuals' acceptance of messages conveyed by the characters (Perse & Rubin, 1989). In Prentice and Miller's (1993) study of pluralistic ignorance regarding drinking behavior at Princeton University, the authors found that male students were more influenced by the campus-wide drinking norms than female students. The authors reasoned that the prototype of Princeton students at the time was masculine, given women's relatively recent presence on campus. For this reason, female students may have felt less identified than male students with the reference group of "Princeton students," for whom drinking was seen as descriptively common and prescriptively approved.

These research findings raise a few key points. Individuals' behavior is not influenced by the norms of reference groups with which they do not feel identified. A recent field experiment provides compelling evidence of this idea. Goode, Balzarini, and Smith (2014) demonstrated that feeling identified with a group affects individuals' intention to bring their behavior in line with group norms. Sorority members who were led to see themselves as more (vs. less) prototypical

of their group intended to drink less alcohol and reported drinking less alcohol, after exposure to related group norms. Similarly, when Stangor et al. (2001) examined the effects of group summary information on endorsement of racial stereotypes, changes in endorsement were stronger when the information was about other students at their college (their ingroup) than when it was about students at another college (their outgroup).

Moreover, the reference group may need to be relevant to the specific behavior targeted by an intervention (Goldstein et al., 2008). For example, to promote adoption of a new seed technology, an appropriate reference group would be farmers whose land is of a similar size (BenYishay & Mobarak, 2014), and to promote enrollment in a retirement savings plan, an appropriate reference group would be employees in a similar economic position (Beshears, Choi, Laibson, Madrian, & Milkman, 2014). Beshears and colleagues (2014) found that providing information about the savings of age-matched coworkers had the opposite intended effect of *decreasing* unionized employees' savings. The researchers concluded that these employees may have perceived they were being compared to the wrong reference group—to peers of higher economic status with a greater capacity to save.

These results imply an important initial process for all designers of a norm change intervention, which is to identify the correct reference group. Identifying the correct reference group is difficult, and requires preparatory quantitative and qualitative research to understand which identities carry particular meaning for the population of interest. More research is needed to test whether the extent of norm and behavior change scales in linear fashion with an individual's degree of identification with the reference group.

After selecting the correct reference group, it is important for individuals to identify with the particular source of the normative information—for example, with the particular social

referent. In our work with norm change interventions in schools, we select social referents who are the leaders of smaller cliques at the school in addition to widely known students who are relatively more prototypical of school identity. In contrast to the widely known social referents, students who are leaders of cliques represent sub-group identities such as the "math geeks" or the "drama kids." Students from those cliques identify much more strongly with their clique leaders than with the widely known social referents. As predicted, the behavior of these clique leaders was able to change the perceptions of school-wide social norms among students in their respective cliques to the same extent that the widely known leaders changed perceptions of norms among their peers (Paluck & Shepherd, 2012).

Identification with reference groups can shift over time, and one of the ways it may change is across the lifespan. While a friend group may be a highly central identity during adolescence, other groups such as one's coworkers or neighbors may be more central later in life. Other factors, such as changing geographic locations, may also affect which reference groups are felt to be most relevant and what normative information is easily observable about a group. Identification with a group may not mean being physically close to other group members, but physical proximity can affect the number of opportunities people have to observe how group members behave. All of these observations reinforce the point that research is needed to identify the most meaningful reference group and sources of normative information for a population of interest before designing a norm change intervention.

When New Norms Are Believable Representations of Group Opinions and Behavior

New norms do not have to be accurate (i.e., identical to the true current group opinions and behavior) in order to affect group opinions and behavior, but they must be sufficiently believable in order to do so. New presented norms may by design diverge from actual patterns of

attitudes and behavior. For example, a university attempting to create a more racially diverse

campus climate may depict "inflated diversity" in their brochures (Prichep, 2013). In some cases,

information about a norm may be too distant from reality to be believable and thus effective in

influencing perceptions of the norm and behavior. An extremely high level of racial diversity

depicted in a historically White college brochure, for example, may not only appear unrealistic,

but also lead individuals to resent this inaccurate representation of the group (Prichep, 2013).

Similarly, passengers in taxi cabs were more likely to refrain altogether from tipping when the

default amounts for tips on the credit card screen were a higher range (20% / 25% / 30%)

compared to a lower range (15% / 20% / 25%), presumably because they recognized the

extremity of the suggested tips compared to their own understanding of normative tipping

amounts (Haggag & Paci, 2014). It may be tempting to design an intervention that introduces a

false norm of virtually unanimous support for a new idea, for example by claiming that 99% of

students at a school recycle. Researchers presenting inflated or deflated normative information,

however, have recognized that normative information should be plausible, whether because it is

not far from the status quo or because it difficult for individuals to directly observe and refute

(e.g., Fellner et al., 2013; van der Linden, 2013). Another way to present normative information

as plausible is to present the norm as *beginning* to change, or as experiencing *momentum* in a

particular direction. For example: *more and more people are supporting gay marriage*

(Sparkman & Walton, 2015; Tankard & Paluck, 2015). Future research could helpfully explore

the psychology of judging distance between a current norm and a change in that norm.

When the Individual's Personal Views Are Closer to the New Normative Information

Just as individuals judge the distance between new information about a norm and their

own current perception of the norm, they judge the distance between the new information and

their own private opinions. For example, individuals may learn that many more people in their community are recycling compared to what they previously thought, and they may also evaluate this information against their own positive or negative opinions of recycling. A body of work in psychology suggests that individuals' behavior is more easily influenced by norms when the individuals are already personally in favor of those norms, an effect called licensing.

Licensing (norms validate personal opinions). Alignment between a norm and a personal opinion *licenses* a person to behave in the way she already prefers to behave (Miller & Prentice, 2013; Prentice, 2012). Public opinion polls in the United States, for example, show that a plurality of Americans who support same-sex marriage are unaware that public support has now shifted to the majority of Americans (Jones, Cox, & Navarro-Rivera, 2014). Awareness of this public support may license supporters to act on their views in public. Historically, when the practice of hiring discrimination against African-Americans was made illegal in the American South, this new norm was in line with many employers' private preferences, although previously they did not voice their preferences publicly (Lessig, 1995). The legal change gave egalitarian employers a socially acceptable excuse to act in a way they already supported.

Experimentally, a licensing effect was demonstrated in the previously described field experiment on drinking and pluralistic ignorance, in which information that most college students do not drink alcohol excessively corrected students' impression that excessive drinking was typical and desirable on campus (Schroeder & Prentice, 1998). This information reduced individuals' own drinking by providing them with information that their peers' views and actual alcohol consumption were more similar to their own preferences than they previously believed (Schroeder & Prentice, 1998; see also Lewis & Neighbors, 2006).

Thus, norm change interventions have a high likelihood of success when the population is ready for the message. Whether because tradition or law previously proscribed the behaviors or opinions, or because the behaviors or opinions are not highly visible, people may be unaware that their private attitudes are actually normative. Providing information that their attitudes are normative should change public behaviors with relative ease. A much more difficult context is one in which interventions have the task of motivating compliance with a norm that runs against personal opinion.

Motivating (norms run against personal opinions). Individuals may comply with a norm that runs against their personal opinions when the norm is perceived to be so strong that they will be socially punished for their deviance (Blanton & Christie, 2003; Miller & Prentice, 2013). The requirement of a strong norm to overcome personal opinions presents a challenge for norm change interventions: the normative information must persuade recipients that they might feel socially isolated, awkward, or rejected for deviating from the norm. As we previously reviewed, some interventions motivate compliance with the norm through public announcements of deviance (e.g., Gerber, Green, & Larimer, 2008) or through comparisons of individuals with their group (e.g., Schultz et al., 2007).

An individual's personal opinions may not be aligned with a norm for different reasons. For one, he may actually hold a view that is actively in *opposition* to the norm. Over the past few years, U.S. residents have been exposed to many arguments and social movements regarding same-sex marriage. If they do not agree with the current norm of support for same-sex marriage, it is likely because they hold a view *counter* to the norm. We can also imagine, however, that some individuals have not given much thought to the issue of same-sex marriage, and do not have a strong opinion. Ambivalence may also emerge in reaction to novel behaviors and

opinions. When recycling was introduced to the public, some people supported it or did not support it, but others were ambivalent until they had more experience trying to recycle, since it was such a new practice.

It can be difficult to persuade individuals to comply with a norm if they actively oppose it (Costa & Kahn, 2013; Fellner et al., 2013). More research is needed to understand how to use norm change interventions to influence these individuals. If individuals are extremely high in personal opposition to an idea such as same-sex marriage, then learning that a reference group now supports same-sex marriage may simply lead them to distance themselves from that reference group (see also Burks & Krupka, 2012). Prentice (2012) cites the widely known example of pitting one strong norm against another, when norms of gentlemanly duty in the South were invoked to end dueling. In this case, laws failed to end dueling, revealing the difficulty of deactivating the pro-dueling norm. Changing the penalty for dueling to a ban from public office, which was a high cost for that population, proved more successful to end the practice, because it activated a different norm that was already strong. More strategies like these could be tested experimentally to address intractable norms and behaviors.

When the New Normative Information Is Widely Shared

New information regarding norms is particularly influential if individuals know that the information is widely shared among reference group members. Awareness that others are also receiving the same information serves as further proof that a particular opinion or behavior is widely recognized, enacted, or endorsed by the group (Chwe, 2003). For example, Super Bowl audience members are aware that commercials aired during the game are viewed by hundreds of thousands of other people simultaneously. Opinions aired in Super Bowl commercials are expected to be perceived as more normative, or widely endorsed, compared to when they are

aired during regular broadcasting (Chwe, 2003). Similarly, if an individual in a social network is popular, a perceiver may infer that many others are also looking to this popular individual to understand the norm, which is part of the individual's power over perceived norms in the network (Paluck & Shepherd, 2012; Shepherd, 2014).

A recent field experiment in Mexico directly tested the effectiveness of widely shared information compared to privately received information in changing attitudes and norms. Arias (2014) manipulated whether a radio soap opera relaying rejection of violence against women was transmitted to participants individually (by listening to a CD-rom) or socially (at a group meeting or from a community loudspeaker). The radio program strengthened perceptions of social norms rejecting violence against women *only* when the method of delivery was social, not when it was individual. Moreover, the results suggested that knowing that others are receiving the same content (in this case, by receiving the content from a loudspeaker) is in itself sufficient to change attitudes and norms, even if there is no direct social interaction with fellow recipients (as in a group meeting).

When Descriptive Norms Are Contextualized

Descriptive norms can be powerful, but as we have already reviewed, they also run a risk of backfiring. When a problematic behavior or viewpoint is prevalent in a context, one intuition about how to intervene is to increase awareness of that problem. For example, posters or mailings might state that four out of five women in a community are abused, or that the average student on a college campus consumes five alcoholic drinks per week. Sharing these statistics, however, can actually end up making individuals feel that it is normal and okay to abuse women or to drink five drinks per week, since that is what most people do.

How can we share problematic statistics without producing more problematic behaviors, or reproducing problematic norms? One tactic is to give individuals evaluative feedback on their position relative to the norm. In an example covered previously, individuals were given summary information about how much energy they use compared to other people (Schultz et al., 2007). For some individuals, their personal consumption was lower than the group average, which could potentially encourage them to use *more* energy. For these individuals, positive evaluations (smiley faces) accompanied their feedback, encouraging them to continue using less than the norm (see also Pruckner & Sausgruber, 2013). Similarly, if a student tends to drink one alcoholic drink per week and learns that other people tend to drink five, communicating approval of drinking less than the average may be important to discourage them from beginning to drink closer to the average.

Another tactic relies on the fact that norms can be characterized in different ways. A norm is defined by its central tendency, its dispersion (Paluck & Ball, 2010; Prentice, 2012), and the direction in which it is moving. A norm's central tendency represents where the average behavior or opinion is located. Two colleges might both have a norm with a central tendency of drinking five alcoholic drinks per week. The dispersion of the norm, however, refers to the degree to which all group members comply with the norm—their uniformity. At one of the two colleges in question, perhaps all students tend to consume four, five, or six drinks per week. At the other college, it could be that students are heterogeneous: some don't drink at all, while others drink nine or ten drinks per week. When the central tendency of a norm is not favorable, it can be effective to emphasize its dispersion: *many group members do not drink, or only have one or two drinks* (Paluck & Ball, 2010). In other cases, students may focus on the extreme cases when forming their perceptions of the norms, and so emphasizing the central tendency could

reshape their perception of a norm of extreme drinking: *on average students only drink five drinks per week, not ten*. Describing a favorable direction in which a norm is moving is another option: *students are starting to drink fewer drinks per week* (Sparkman & Walton, 2015; Tankard & Paluck, 2015).

Recommendations for Policy Applications

Integrating norm change interventions into policy requires determining when targeting norm perception is most appropriate in real-world settings. Norm change interventions are not the only way to influence an individual or collective of individuals. There are times when norm change interventions may be particularly appropriate, when other types of interventions may be a better fit for changing behavior, and when multiple strategies could be combined. Other interventions include attitude persuasion interventions that focus on individuals' personal opinions or beliefs, educational programs, interventions that target behavior in an entirely different way such as a "nudge" (making a behavior easier to engage in) or "shove" (explicitly banning or requiring a behavior; Kahan, 2000), and material incentives (e.g., Ahuja et al., 2010; Viscusi, Huber, & Bell, 2011; cf. Fehr & Falk, 2002). Effective intervention design requires careful analysis of the problem at hand to figure out exactly which factors are keeping people from acting in a desired way (Datta & Mullainathan, 2012). This behavioral "diagnosis" (Datta & Mullainathan, 2012) may reveal, for example, that people are not yet informed about the importance of a new behavior, that they are already motivated to engage in it but have trouble acting on their intention, or that they are already motivated but feel socially stigmatized if they act on their intention.

Further investigation of the appropriateness of different interventions in different behavioral contexts is a critical area for future study, but the existing literature provides some

initial guidance as to the conditions under which using normative influence may and may not be particularly effective. When people are already motivated to do something, such as receive a vaccine, and it is not a stigmatized behavior, it may be appropriate to prioritize removing environmental or psychological obstacles that are preventing people from implementing their intentions. Channel factors are seemingly minor aspects of a situation that can either facilitate or block behaviors (Lewin, 1951), such as whether is easy or difficult to locate the infirmary where one needs to go to receive a vaccine (Leventhal, Singer, & Jones, 1965). An appropriate channel factor solution in this case may be simply providing a map displaying the route to the infirmary.

When a behavior is not publicly observable, a norms intervention may be a good option. Some behaviors are not typically done socially, such as checking one's tire pressure, and others are usually discussed in private, such as using birth control or being screened for sexually transmitted infections (STIs). When behaviors are not publicly visible, people's perceptions of what is normal may be highly skewed, because they lack good information about what others are doing. A norms intervention can provide this information about the fact that other people are checking their tire pressure and being screened for STIs, to encourage members of a particular reference group to do the same. For some extremely personal behaviors and experiences, such as experiencing relationship abuse, individuals may not want to feel that there is an audience of other people involved in potential courses of action (Tankard, Paluck, & Prentice, 2014). In this case, normative information could be adapted so as to avoid the impression that an audience is watching and judging an individual's response to the situation.

Norm interventions may be highly appropriate when people need social motivation or licensing to engage in a behavior, and when acting in line with a particular reference group is important to them. If individuals do not already support a behavior, normative information is

useful to encourage them to support and engage in the behavior. If individuals already support a behavior, normative information is useful to remind them to engage in the behavior.

Norm interventions take many forms. As we have discussed, researchers and practitioners can target different sources of normative information, with some being more appropriate and effective in different contexts. An interpersonal, inherently social behavior such as peer harassment, for example, may require an individual role model to communicate a new norm rather than solely targeting summaries of group behavior or institutional change. In the context of peer harassment, the reputation and social status of each individual in the network is on the line, and seeing an individual model a norm of speaking out against harassment demonstrates firsthand to a perceiver that he or she will not lose social status by speaking up (Paluck & Shepherd, 2012). In other cases, normative information from institutions instead of individuals or groups has its own distinct advantages. It may not be credible to claim that members of a Greek organization do not support hazing, for example. However, if the organization itself discourages hazing, this action could potentially be effective in changing group norms if the institution is respected by group members and seen as at the heart of the group.

Norm change interventions also need to be strategic about fitting norms to the right reference group. We may be attracted to the idea of changing an entire community's norm, when it may be more effective to tailor messages to subgroups within the community that have strong local identities. Norm interventions may be less effective when there is no cohesive identity to describe. If many families all live in the same apartment complex but do not feel a shared sense of identity, for example, then the norms of the building may be meaningless for these families. A larger or smaller reference group may be more appropriate in this case, such as "residents of this city" or "members of the first floor." If identification with a group is not strong or interactions

with other group members are infrequent, use of mass media may be an effective way to draw individuals into a shared experience of new norms.

Sometimes, the existing norms of a community are in the opposite direction desired by policymakers or practitioners. As we mentioned, when the central tendency of a norm is not favorable (*average drinking rates are high*), it can be effective to emphasize its dispersion (*some people don't drink*) or a direction of change (*people are starting to drink less*). And when the dispersion draws attention to extreme behaviors in a community, presenting the central tendency as the norm can lead people to believe that extreme behaviors are counter normative. Finally, norms can be used to increase engagement in other kinds of behavior change interventions that are not perceived to be attractive. For example, educational interventions could be portrayed as popular or desirable among a person's group members. Understanding when norm interventions, and different kinds of norm interventions, are a good fit for different social problems is an ongoing process that should continue to be developed as new interventions are evaluated and new problems addressed.

Altering normative information in the environment can be a powerful way to introduce social change. This strategy is critical for policymakers to understand and employ. Many aspects of this strategy need further research in order to maximize the impact of these methods. We stress the importance of continuing field experiments that examine the effects of real world norm change interventions, as opposed to conducting correlational analysis. Random assignment to control and treatment groups allows investigators to isolate the effects of norm change interventions and the downstream effects of shifted normative perceptions on other outcomes such as behavioral and attitudinal change. Norms are specific to the communities being studied,

and thus require background research to design normative messaging that could be expected to be effective.

Measurement of perceived norms should be more consistently incorporated into the evaluation of social interventions, particularly interventions that involve institutional change. In many cases there are reasonable theoretical grounds for hypothesizing that the intervention, such as making organ donation a default behavior, influences behavior change through a shift in perceived norms. Directly measuring norms as an outcome is a way to open up the black box of individual level change, and to test how a change in perceived norms relates to other outcomes.

Institutional change is inherently relevant to any policy change, and further research on this particular topic is important to understand how new laws and programs affect individuals' understanding of social norms. If most citizens in a Colombian community are aware that their government is running a program entitled Mujeres Ahorradoras (Women Savers), the program may have a direct effect on the women who save money through the program, but it also may have important effects on perceived norms in the community regarding women's financial involvement and general level of empowerment. For example, citizens may come to perceive that it is common and respected in their community for women to be financially independent. On the other hand, the presence of such a program could spread a perception that women are weak and in need of government help. Without measuring effects on norms within the community at large, we cannot know the full extent of positive and negative effects of highly publicized policy changes and social programs.

Throughout this review, we have indicated where more research would help to advance our understanding of the science of changing norms and behavior. We mention a few more future directions for research here in closing. First, it is essential to collect longer-term follow-up

measures of perceived (not just actual) norms in evaluations of policy and behavior change interventions. These measures can test the extent to which the normative change correlates with behavioral change across time and situations. For example, how long will shifts in perceived norms about women in politics persist following the reservation program in India and how many times should this program reserve seats for women in order to produce long-term effects? Is it effective to provide a "booster" to a normative intervention at a later date, building on normative messages that already resonated with participants?

The cost-effectiveness of different normative intervention strategies should also be analyzed as interventions are tested, and compared to the cost-effectiveness of other kinds of interventions (Sunstein, 2013). Normative messaging often has the benefit of reaching many individuals at once, through media programming and signage, which stands in contrast to many one-on-one educational programs aimed at changing attitudes.

Finally, successful normative interventions should be scaled up (see Allcott, 2011), with careful attention to aspects of the intervention that may unintentionally differ when implemented on a larger and more systematic scale. Not all is kept equal when an intervention strategy is translated from a lab setting to a real-world setting or when it is seen as coming from a government or police force as opposed to an NGO or university. It is important to continue evaluating normative interventions' consequences as they are scaled up, conducting experiments to clearly understand their ongoing effects.

Perceived norms are not merely a psychological curiosity. Given the potential of norm perception interventions to have powerful effects in real-world contexts, scholars, practitioners, and policymakers need to join their efforts and expertise to determine how best to implement proven norm interventions on a large scale.

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