Self-Belief Change Despite the Desire to Remain the Same

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Abstract

In order to understand behavior change, it is important to understand self-belief change. People prefer to verify, and thus to have stable self-beliefs in order to maintain the perception that they know themselves well, or self-knowledge confidence. Explanations of self-belief change must take into account people's desire to maintain self-knowledge confidence. I offer a new perspective of self-belief change. According to this perspective, people's self-beliefs change when they can maintain self-knowledge confidence. I conducted two experimental studies to test this perspective. In the first study, participants received feedback that either verified or challenged one of their self-beliefs that they held with either certainty or uncertainty. Participants' self-knowledge confidence was bolstered when one of their certain self-beliefs was verified. In the second study, participants received feedback that challenged one of their self-beliefs that they held with either certainty or uncertainty. Some were also given feedback that verified a different one of their certain self-beliefs. When participants had one of their certain self-beliefs verified before they had one of their self-beliefs challenged, they were more likely to change their self-belief. In addition, participants were more likely to change a certain self-belief than an uncertain self-belief. These effects were mediated by the extent to which participants were open to accepting self-inconsistent information and weren't motivated to verify their self-belief that was challenged. I discuss the role of self-knowledge confidence in self-belief change. I also discuss implications for the perspectives of self-belief change that have been offered in the literature to date, and the extent to which self-belief changes last over time and across situations.

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People's behaviors are shaped by their self-beliefs (Markus & Wurf, 1987). People are anti-social when they believe they are shy (Swann, 1984), and smoke when their self-beliefs match their perceptions of the typical smoker (Gibbons & Gerrard, 1995). People's behaviors change when their self-beliefs change. People become more social when they believe they are extraverted (Fazio, Effrein, & Falender, 1981), and quit smoking when they define themselves as non-smokers (Shadel & Mermelstein, 1996). In order to understand behavior change, it is important to understand self-belief change.

Self-beliefs change when they are challenged by information that is discrepant with them and the information is considered representative of the self. Self-belief change has been shown to occur in response to major life changes [e.g., entering college (Cassidy & Trew, 2001; LeMay & Ashmore, 2004)], interpersonal dynamics (Markus & Kunda, 1986), personality feedback (Eagly & Acksen, 1971; Kinch, 1968; Swann & Hill, 1982), questions about typical social behavior (Fazio et al., 1981; Major, Cozzarelli, Testa, & McFarlin, 1988), and strategic expressions of personal attributes (Schlenker & Trudeau, 1990; Tice, 1992).

Yet, self-belief change is the exception to the rule. People have a strong desire to verify, rather than to change, their self-beliefs (Swann, 1984). As a result, self-beliefs become increasingly stable over time and across situations (Cassidy & Trew, 2001; Lemay & Ashmore, 2004; Mortimer & Lorence, 1981). People want their self-beliefs to be verified and to be stable because they want to maintain the perception that they know themselves well, or self-knowledge confidence (Swann, 1984). Hence, explanations of self-belief change must take people's desire to maintain self-knowledge confidence into account.

Overview

Given people want to maintain self-knowledge confidence, how and when do they change their self-beliefs? I will first discuss people's efforts to verify, and thus to have stable self-beliefs in order to maintain self-knowledge confidence, a phenomenon most directly addressed by self-verification theory (Swann, 1984). I will then describe perspectives on self-belief change offered in the literature to date, including self-presentation and self-verification perspectives. These perspectives have shed light on how and when self-belief change occurs. Moreover, the self-verification perspective takes into account people's efforts to verify, and thus to have stable self-beliefs. However, none of the perspectives take into account people's desire to maintain self-knowledge confidence. Finally, I describe a new perspective on self-belief change that takes into account people's desire to maintain self-knowledge confidence.

According to this new perspective, people's concern for their self-knowledge confidence plays a critical role in whether they will change their self-beliefs. People don't change when doing so causes them to question whether they know themselves well. To the contrary, people change when they also maintain self-knowledge confidence. I will report two experimental studies that were conducted to test predictions derived from this new perspective. In the first study, I examined whether self-knowledge confidence is affected by self-relevant information. In the second study, I examined whether self-beliefs are more likely to change when self-knowledge confidence is maintained.

Self-Verification and Self-Belief Stability

A substantial body of evidence suggests that people engage in a variety of inter- and intrapersonal behavioral and informational processing strategies in order to verify

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and thus have stable self-beliefs. This includes behaving according to their self-beliefs despite expectations from others to do otherwise (Swann & Ely, 1984), preferring to interact with people who have similar self-beliefs (Niedenthal, Cantor, & Khilstrom, 1985; Swann, Stein-Seroussi, & Giesler, 1992), seeking verifying social feedback from others (Giesler, Josephs, & Swann, 1996), eliciting verifying social feedback from others (Swann, Pelham, & Krull, 1989), increasing attention to verifying information, and storing verifying information in memory (Swann & Read, 1981). Self-verification is particularly likely to occur when self-beliefs are challenged by self-discrepant information.

Despite their desire to think favorably about themselves (Sedikides, 1993), people verify not only positive but also negative self-beliefs. For instance, in a study in which participants were allowed to seek feedback about their personal attributes, participants sought positive feedback about their positive attributes and negative feedback about their negative attributes (Swann et al., 1989). Not all self-beliefs, however, are verified. Beliefs that are strong because they are held with certainty or thought of as more important than others (Pelham, 1991) are more likely to be verified than weak self-beliefs. Swann and Ely (1984), for instance, observed that the more certain participants were of their extraversion or introversion, the more they behaved in line with their self-beliefs during an interview with other participants who were encouraged to confirm that they were not extraverted or introverted, respectively. Similarly, college students who were certain of their self-beliefs desired to continue living with their roommates when their roommates' beliefs about them were similar to their own; amongst those who were uncertain of their self-beliefs, similarity in self-beliefs bore no relation to the desire to remain roommates

(Swann & Pelham, 2002). Interestingly, the tendency to verify strong self-beliefs may explain why self-beliefs become increasingly stable over time.

People verify their self-beliefs in order to have stable self-beliefs and maintain the perception that they know themselves well, or self-knowledge confidence (McNulty & Swann, 1991; Swann, 1984; Swann & Pelham, 2002). Self-knowledge confidence is based on the perception of having a coherent self-concept that is consistent, well-defined, familiar, and reliable. It can be referred to as self-concept clarity, or "the extent to which the contents of an individual's self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable" (Campbell et al., 1996a, p. 141). Self-knowledge confidence allows people to predict and to control both their behaviors and the behaviors of those with whom they interact. Ultimately, this allows them to establish smooth social interactions (Giesler & Swann, 1999; McNulty & Swann, 1991; Swann, 1984; Swann, 1990; Swann, Rentfrow, & Guinn, 2003). In contrast to the assertions of cognitive dissonance theory, self-verification theory asserts that self-belief inconsistencies are not concerning in and of themselves. Rather, they are only concerning because they create self-belief instability and thus threaten self-knowledge confidence (Swann, 1984; Swann, 1990; Swann, 1997).

People can express both chronic and state self-knowledge confidence. Chronic self-knowledge confidence relates to self-perceptions across time and situations. State self-knowledge confidence reflects moment-to-moment changes in self-knowledge confidence and relates to self-perceptions at any particular point in time. Although chronic self-knowledge confidence is inversely related to variability in state self-knowledge confidence over time, it is not related to state self-knowledge confidence at

any particular point in time. State self-knowledge confidence is responsive to situational cues, and chronic self-knowledge confidence does not moderate this relationship (Nezlek & Plesko, 2001).

Perspectives on Self-Belief Change to Date

People's efforts to verify, and thus to have stable, self-beliefs in order to maintain self-knowledge confidence limits the extent to which they are willing to change their self-beliefs. Self-presentation and self-verification perspectives on self-belief change have been offered in the literature to date. Self-presentation perspectives elucidate processes and conditions of self-belief change. However, they fail to recognize that people's efforts to maintain self-knowledge confidence limit the extent to which they are willing to change their self-beliefs. The self-verification perspective explicitly accounts for people's efforts to verify, and thus to have stable, self-beliefs. It too, however, does not explicitly recognize that people's desire to maintain self-knowledge confidence plays a role in whether they change their self-beliefs.

Self-presentation perspectives. Self-presentation perspectives on self-belief change include the biased-scanning perspective (Tice, 1992; Tice 1994), the dual-process perspective (Jones, 1993; Rhodewalt, 1986), and the self-identification perspective (Schlenker, 1986; Schlenker & Pontari, 2000). All of these perspectives focus on the impact of people's behaviors on their self-beliefs, and they all assert that changes occur when behaviors are perceived to represent the self. The perspectives propose different sets of processes and conditions of self-belief change.

According to the biased scanning version of self-perception theory, behaviors affect self-beliefs if a biased scan of self-knowledge uncovers related self-beliefs or

memories of engaging in similar behaviors. In other words, people's self-beliefs are only altered by behaviors that are consistent with their self-knowledge (Tice, 1992; Tice, 1994). Fazio et al. (1981) conducted a study in which participants were asked to respond to interview questions that pulled for either introverted (e.g., "What things do you dislike about large parties?") or extraverted (e.g., "What would you do if you wanted to liven things up at a party?") responses. Participants subsequently reported perceiving themselves as introverts or extraverts, respectively. The results were interpreted as reflecting participants' increased awareness of previously engaging in introverted or extraverted behaviors.

True to its roots in self-perception theory (Bem, 1972), the biased scanning perspective asserts biased scans of self-knowledge are more intense and that therefore self-belief change is more likely the more people take the perspective of others in their social environment when evaluating their behaviors. Thus, behaviors are more likely to impact self-beliefs when those behaviors are publicly recognized and when people can attribute them to their internal dispositions (Tice, 1994). Consistent with this assertion, participants asked to portray themselves as either introverted or extraverted in response to trait-neutral interview questions were subsequently more likely to report being introverted and extraverted, respectively, when they enacted the portrayals in the presence of others, expected a future interaction with the observers, or were high self-monitors (Tice, 1992).[1]

Like Fazio, Zanna, and Cooper (1977) regarding attitude change, Rhodewalt (1986) and Jones (1993) offer a dual-process account of self-belief change. They argue that dissonance mediates the impact of behaviors on self-beliefs. Accordingly, change

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occurs through two different paths marked by two different processes. In one path, behaviors don't invoke dissonance because they are self-consistent and result in self-belief change via biased scanning. In the other path, behaviors invoke dissonance because they are self-inconsistent and result in self-belief change via dissonance reduction. In other words, they argue that people's behaviors can result in self-belief changes regardless of whether they are consistent with existing self-knowledge, but through two different processes.

Behaviors are considered self-consistent if they fall within self-beliefs' latitudes of acceptance and self-inconsistent if they fall within self-beliefs' latitudes of rejection. According to social judgment theory (Sherif & Hovland, 1961), a belief corresponds to a position on a continuum. For example, on a continuum that represents all possible degrees of outgoingness, people who believe that they are extremely outgoing can be considered on the opposite end of the outgoingness continuum from people who believe that they are not at all outgoing. Adjacent positions can correspond to acceptable alternative beliefs. Other positions can correspond to unacceptable alternative beliefs. The belief and acceptable alternative belief positions often form a continuous range, which is referred to as the latitude of acceptance. The unacceptable alternative belief positions often form a separate continuous range, which is referred to as the latitude of rejection. People perceive statements about their beliefs as self-consistent. In addition, people perceptually assimilate statements about acceptable alternative beliefs to their beliefs. Thus, these statements are objectively self-discrepant, but are subjectively perceived as self-consistent. People perceptually contrast statements about unacceptable

alternative beliefs away from their own beliefs. These statements are objectively self-discrepant, and are subjectively perceived as self-inconsistent.

To clarify, the latitude of acceptance is typically operationalized as the range of points on a belief scale that includes the point that represents a belief and the points that represent acceptable alternatives to that belief. The latitude of rejection is typically operationalized as the range of points that represent unacceptable alternatives to that belief (e.g., Schlenker & Trudeau, 1990). Imagine that a person indicates that scale point 6 on a 0 to 6 Likert-type belief scale (0 = not at all outgoing, 2 = slightly outgoing, 4 = quite outgoing, 6 = extremely outgoing) represents his belief about the extent to which he is outgoing. If he also indicates that scale points 4 and 5 represent acceptable alternatives to that belief and that scale points 0 to 3 represent unacceptable alternatives to that belief, his latitude of acceptance ranges from 4 to 6 and his latitude of rejection ranges from 0 to 3. He would perceive the statement that he is extremely outgoing as self-consistent *and* the self-discrepant statement that he is quite outgoing as self-consistent. He would perceive the self-discrepant statement that he is slightly outgoing as self-inconsistent.

In a test of Rhodewalt's (1986) and Jones' (1993) dual-process perspective of self-belief change, non-depressed and depressed participants engaged in a one-on-one interview during which they presented themselves as having positive or negative personal attributes. For non-depressed participants, expressing positive attributes was thought to be within their latitudes of acceptance and thereby self-consistent, and expressing negative attributes was thought to be within their latitudes of rejection and thereby self-inconsistent. For depressed participants, expressing negative attributes was thought to be within their latitudes of acceptance and thereby self-consistent, and expressing positive

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attributes was thought to be within their latitudes of rejection and thereby self-inconsistent.

Participants changed their self-beliefs regardless of whether their behaviors were consistent with their existing self-knowledge. When participants' behaviors were self-consistent, they changed via biased scanning. When participants' behaviors were self-inconsistent, they changed via dissonance reduction. For example, non-depressed participants who expressed positive attributes were more likely to subsequently endorse having positive attributes if they intentionally called to mind previously expressing positive attributes and thus intensified a biased scan of their self-knowledge. Non-depressed participants who expressed negative attributes were subsequently more likely to endorse having negative attributes if they freely chose to do so. This increased their need to attribute their behaviors to their internal dispositions, and thus rationalize them as self-representative (Rhodewalt & Agustsdottir, 1986).

Schlenker (1986; Schlenker & Pontari, 2000) also asserts that both self-consistent and self-inconsistent behaviors can result in self-belief change. But he argues that neither biased scanning nor dissonance reduction is necessary for self-beliefs to change. Rather, because self-beliefs are a product of the social environment, behaviors are perceived as representative of the self -- and self-beliefs change -- when they are publicly recognized, socially desirable, and approved by others. For instance, Schlenker, Dlugolecki, and Doherty (1994) observed that participants were more likely to change their self-beliefs when they behaved in public.

In addition, Schlenker argues that behaviors are perceived as representative of the self when they are referenced against prior experiences engaging in them, when they are

attributed to internal dispositions, and when self-beliefs are weak. Schlenker and Trudeau (1990) asked participants to indicate their beliefs about their independence, their corresponding latitudes of acceptance and rejection, and the strength of their beliefs. Following this, half of the participants were asked to behave within their latitudes of acceptance, and half were asked to behave within their latitudes of rejection. A misattribution of arousal manipulation was also included; all participants were asked to ingest a drug, and half were told that the drug may make them feel tense.

Whereas participants with weak self-beliefs adjusted their beliefs about their independence regardless of whether they behaved within their latitudes of acceptance or rejection, participants with strong self-beliefs adjusted their beliefs about their independence only when they behaved within their latitudes of acceptance. The misattribution manipulation had no effect on self-belief change. Interestingly, amongst those who behaved within their latitudes of rejection, those who were provided with the opportunity to misattribute their behavior to the tension produced by the drug they ingested didn't change their self-beliefs, even though they claimed more personal responsibility for their behavior than those who weren't provided with this opportunity. They could attribute their behavior to their internal dispositions and were thereby more motivated to rationalize it as self-representative, but they didn't change.

This latter finding is seemingly inconsistent with Rhodewalt and Agustsdottir's (1986) finding that those who had the choice to behave within their latitudes of rejection had more of a need to rationalize their behaviors, and were thus more likely to change their self-beliefs. In that study, however, choice was strategically manipulated. This may have resulted in larger differences in the need to rationalize the behaviors as self-

representative than in Schlenker and Trudeau's (1990) study, and thus provided a stronger and more revealing test of the effects of rationalizing self-inconsistent behaviors on self-belief change. Nonetheless, this finding indicates that self-belief changes due to self-inconsistent behaviors don't come easily, in that people will find ways to rationalize them without changing their self-beliefs.

Taken together, self-presentation perspectives indicate that people's self-beliefs change in response to their behaviors when they perceive that their behaviors are self-representative, regardless of whether this is due to biased scanning or rationalization. Behaviors are perceived as self-representative when they are referenced against existing self-knowledge, attributed to internal dispositions, enacted by choice, publicly recognized, socially desirable, and approved by others. Moreover, behaviors are perceived as self-representative when self-beliefs are weak. Self-presentation perspectives elucidate when and how self-beliefs change. However, they do not recognize people's efforts to verify, and thus to have stable, self-beliefs in order to maintain self-knowledge confidence. Moreover, self-belief stability is merely characterized as the absence of change.

The self-verification perspective. Swann and colleagues offer a perspective on self-belief change that recognizes people's efforts to verify, and thus to have stable, self-beliefs. According to this perspective, people change their self-beliefs when their self-verification efforts are allayed. Thus, people change their self-beliefs in response to self-belief challenges when they are prevented from verifying them (Giesler & Swann, 1999; Swann, 1984; Swann, 1987; Swann & Brown, 1990). Swann and Hill (1982), for example, had a confederate provide participants with feedback that was discrepant with

their beliefs that they were either socially dominant or submissive. Participants altered their self-beliefs only when they were deprived of the opportunity to subsequently interact with the study confederate. When participants were allowed to interact with the confederate they verified their self-beliefs by behaviorally expressing them and refuting the discrepant feedback. Consequently, they maintained their self-beliefs. Moreover, people change their self-beliefs in response to challenges when they are not motivated to verify them, which is more likely when the self-beliefs are held with uncertainty (Giesler et al., 1996; Giesler & Swann, 1999; McNulty & Swann, 1991).

Furthermore, self-verification can paradoxically result in self-belief change. In a study on self-verification and attitude change, participants who were certain of their conservative beliefs about women's social roles engaged in a face-to-face interview during which they were asked leading questions that encouraged them to express extremely conservative beliefs. In order to verify that they were not extremely conservative, they resisted expressing extremely conservative beliefs by disagreeing with the line of questioning and the interviewer's beliefs about women's social roles. Moreover, they indicated they were less conservative than they were prior to the interview (Swann, Pelham, & Chidester, 1988). Neither the extent to which participants expressed anti-conservative beliefs during the interview nor their meta-cognitions were recorded. Based on the available data, it appeared that participants were quick to recognize that they were not extremely conservative when confronted with this possibility. Consequently, they recognized that they were a little less conservative than they initially believed.

The self-verification perspective takes into account people's efforts to verify, and thus to have stable, self-beliefs. But it doesn't recognize the role that self-knowledge confidence plays in self-belief change.

A New Perspective on Self-belief Change

People's desire for self-knowledge confidence plays a critical role in whether they change their self-beliefs, yet this has not been recognized in the perspectives of self-belief change in the literature to date. People typically hesitate to change because doing so causes them to question whether they know themselves well. All things being equal, self-belief challenges threaten self-knowledge confidence. Rather than accepting information that is discrepant with their self-beliefs as self-representative, people will reject such information and verify their self-beliefs.

Recognizing the role of self-knowledge confidence in self-belief change affords alternative explanations of, new predictions about, and consequently, an advanced understanding of self-belief change. According to the perspectives of self-belief change in the literature to date, people change their self-beliefs when they perceive that their behaviors represent who they are, when they can't self-verify, when they are initially uncertain of their self-beliefs, or when they reject the notion of possessing extreme beliefs by verifying their initial beliefs. However, according to this new perspective on self-belief change, people change under these conditions because they maintain self-knowledge confidence, their efforts to maintain self-knowledge confidence are thwarted, their self-knowledge confidence isn't threatened to begin with, or their self-knowledge confidence is simultaneously bolstered.

Of the perspectives of self-belief change in the literature to date, this new perspective is on the surface most similar to the dual-process perspective offered by Rhodewalt (1986) and Jones (1993). It proposes two different paths to self-belief change and, as described below, utilizes the latitudes of acceptance and rejection concepts. However, Rhodewalt and Jones assert that dissonance mediates the impact of self-discrepant information on self-belief change. A model of self-belief change that is focused on self-knowledge confidence is presented in Figure 1.

Within this model, threat to self-knowledge confidence is a mediator of the effects of self-belief challenges on self-belief changes. Accordingly, self-belief changes occur through two different paths. In one path, self-belief challenges threaten self-knowledge confidence. In order to restore self-knowledge confidence, efforts are made to verify the belief that is challenged and defensively process the self-discrepant information. Despite this, self-beliefs can change if there is otherwise a commitment to doing so. In the other path, self-belief challenges don't threaten self-knowledge confidence. As a result, there is no motivation to verify the belief that is challenged, the self-discrepant information is openly processed, and self-beliefs readily change. In fact, self-beliefs may more readily change through this path than through the first path.

Self-belief challenges threaten self-knowledge confidence when self-discrepant information corresponds to positions within self-beliefs' latitudes of rejection, and is thus perceived as self-inconsistent. Threat to self-knowledge confidence is greater when this information is about strong self-beliefs. In particular, threat to self-knowledge confidence is greater when this information is about beliefs that are strong because they are held with certainty. Information that is discrepant with self-beliefs that are strong for other reasons,

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Figure 1. Paths to Self-Belief Change

Self-belief
challenge

Self-knowledge confidence
threatened?

Yes   No

Motivation to
self-verify/
defensive
information
processing

No motivation to
self-verify/
open
information
processing

Committed to
self-belief change?

No   Yes

No self-belief
change

Self-belief
change

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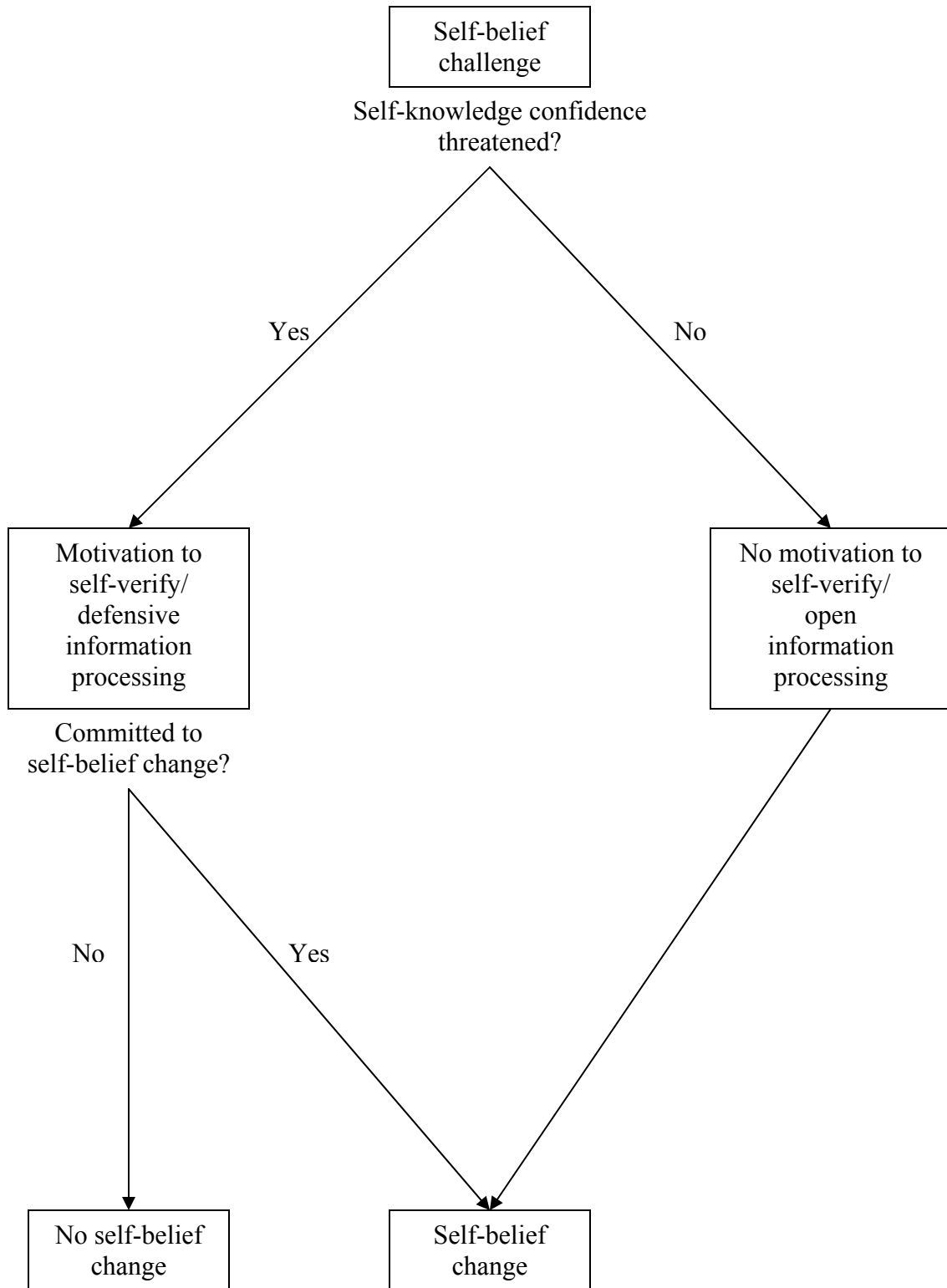
such as being thought of as more important than others, should not pose as large a threat to self-knowledge confidence. In part this is because self-beliefs that are held with certainty are most indicative of self-belief stability (Pelham, 1991), and by extension self-knowledge confidence. Self-beliefs that are held with certainty are particularly likely to be verified (Giesler & Swann, 1999). The more certainly self-beliefs are held, the more stable self-beliefs and the more confident self-knowledge.

When people's self-knowledge confidence is threatened by a self-belief challenge they verify the belief that is challenged and defensively process the self-discrepant information in order to restore their self-knowledge confidence. Unless they are otherwise committed to doing so, they will not change the self-belief. The conditions of self-belief change that are specified by the self-presentation and the self-verification perspectives increase commitment to change. Commitment is strong when self-discrepant information is received repeatedly (Kinch, 1968), received in public situations (Eagly & Acksen, 1971; Schlenker et al., 1994; Tice, 1992), is attributed to internal dispositions (Rhodewalt & Agustsdottir, 1986; Tice, 1994), is socially desirable and approved by others (Schlenker, 1986; Schlenker & Pontari, 2000), and when people are prevented from verifying the self-belief that is challenged (Swann & Hill, 1982). Although self-belief change occurs when there is a strong commitment to it, the change may be tenuous at best. Any efforts to verify the self-belief that is challenged and to defensively process self-discrepant information will undermine the commitment to change. Recall that participants in the study by Schlenker and Trudeau (1990) didn't change their beliefs about themselves even though they were motivated to perceive that their self-inconsistent behaviors were self-representative. They likely engaged in efforts to resist the change and

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thereby rationalized their behaviors in ways other than by perceiving them as self-representative. Belief change is, after all, only one of many ways to rationalize inconsistent information (Festinger, 1957).

Self-belief challenges don't threaten self-knowledge confidence when self-discrepant information corresponds to positions within self-beliefs' latitudes of acceptance and is thus perceived as self-consistent. Schlenker and Trudeau (1990) observed that participants were more likely to change their beliefs when they behaved within their latitudes of acceptance. Interestingly, in early research on the latitudes of acceptance and rejection, latitudes were considered an index of the extent to which persuasion attempts would be successful; it was thought that persuasion attempts would be more successful when belief-discrepant information was within latitudes of acceptance (Deaux & Bieri, 1966; Eagly & Telaak, 1972).[2] In addition, beliefs that are held with uncertainty contribute less to self-knowledge confidence. Thus, information that is discrepant with them won't threaten self-knowledge confidence even if it corresponds to positions with self-beliefs' latitudes of rejection and is thereby perceived as self-inconsistent. Rather, the information provides insight and results in self-belief change.

Neither will self-belief challenges threaten people's self-knowledge confidence when people are otherwise confident that they know themselves well. On one hand this suggests that when people have chronically high self-knowledge confidence, then their self-knowledge confidence will not be threatened by self-belief challenges and they will change their self-beliefs, whereas when people have chronically low self-knowledge confidence, then their self-knowledge confidence will be threatened by self-belief challenges and they will not change their self-beliefs. On the other hand, chronic self-

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knowledge confidence does not relate to perceptions of the self at any particular point in time. Only state self-knowledge confidence, which does relate to self-perceptions at any particular point in time, impacts responses to self-belief challenges. For people to have high state self-knowledge confidence they need to receive information that supports this perception. This occurs if people recognize that particular self-beliefs are stable. People recognize that particular self-beliefs are stable when they verify them.

Thus, a self-belief challenge will not cause people to question their self-knowledge if it occurs when a different self-belief is verified. Evidence suggests that verifying a belief about oneself reduces the motivation to verify other beliefs. Swann, Wenzlaff, and Tafarodi (1992) presented depressed and non-depressed participants with either positive or negative personality evaluations. Compared to depressed participants who were given feedback about positive self-beliefs, depressed participants who were given feedback about negative self-beliefs subsequently indicated a weaker preference to verify other negative self-beliefs. Compared to non-depressed participants who were given feedback about negative self-beliefs, non-depressed participants who were given feedback about positive self-beliefs subsequently indicated a weaker preference to verify other positive self-beliefs. Onorato and Turner (2004) showed that people were likely to change their independent and dependent beliefs when one of their social identities that conflicted with these personal self-beliefs was made salient. For example, men are typically thought of as being independent. Consequently, men who typically described themselves as dependent nonetheless described themselves as independent when their male social identity was made salient.

Similarly, people are more likely to accept self-belief challenging feedback --

even negative feedback -- from close others with whom they frequently interact than

from strangers (Lundgren, 2004), perhaps because close others also typically verify their

self-beliefs. And with verification of the majority of their self-beliefs, students making

the transition to college changed the extent to which they described themselves as

members of particular social categories (e.g., jock, partier, brain) (LeMay & Ashmore,

2004) and believed that they fulfilled particular social roles (e.g., boyfriend) (Cassidy &

Trew, 2001).

Yet, Swann and Predmore (1985) presented participants with self-discrepant

feedback, and then allowed them to interact with their romantic relationship partners.

Only those participants whose relationship partners had incongruent perceptions of them

changed their self-beliefs. When participants' relationship partners perceived them as

they perceived themselves -- and thus could facilitate self-verification -- their self-beliefs

did not change. These findings indicate that the order in which a self-belief is challenged

and a different self-belief is verified may be important. People may quickly question

whether they know themselves upon receiving self-inconsistent information. As a result,

they may quickly make efforts to verify the belief that is challenged and defensively

process the self-inconsistent information. Self-knowledge confidence may be restored

when a different self-belief is subsequently verified. But for self-knowledge confidence

to not be threatened and a self-belief to change, self-verification may have to occur first.

Why won't challenges to people's beliefs about themselves threaten their

perceptions that they know themselves well when one of their different self-beliefs is

verified? When they self-verify, people's confidence in their self-knowledge is bolstered

(Swann, 1990; Swann, 1997). In the context of bolstered self-knowledge confidence, self-discrepant information is not threatening. People respond negatively to self-belief challenges that occur in isolation from other self-relevant information, but positively to self-belief challenges that occur in the context of self-verifying information. Imagine that a person who describes herself as independent is presented with information that suggests she is a dependent person. She will respond negatively to this information and ask herself, "Am I not who I think I am?" To combat a loss to self-knowledge confidence, she will reject the suggestion that she is a dependent person and verify her belief that she is an independent person, holding fast to her original self-belief. Alternatively, imagine that the same person is first given information that reinforces her belief that she is warmhearted. This will make her feel that she knows herself well. Now confident in her self-knowledge, the challenge to her belief that she is an independent person won't make her question herself. Rather, she will be open to new, alternative information and ask herself, "Is it acceptable to be who I might otherwise be? In the context of bolstered self-knowledge confidence the self-discrepant information will be acceptable. Although she will perceive that the self-discrepant information is within her latitude of rejection and thus self-inconsistent, she will allow for defining herself in new terms.

What information verifies self-beliefs? Self-beliefs are verified by self-relevant information that is within the latitude of acceptance, and is thus perceived as self-consistent. In fact, participants are typically provided with information that is relatively consistent with their beliefs in order to verify their beliefs (e.g., Swann & Hill, 1982; Swann, Wenzlaff, Krull, & Pelham, 1992; Swann, Wenzlaff, & Tafarodi, 1992). Because self-beliefs that are held with certainty contribute more to self-knowledge confidence

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than self-beliefs that are held with uncertainty, verifying self-beliefs that are held with certainty bolsters self-knowledge confidence and prevents self-belief challenges from threatening self-knowledge confidence more so than verifying self-beliefs that are held with uncertainty. In addition, because people verify both positive and negative self-beliefs (Swann et al., 1989), people's self-knowledge confidence is bolstered by verifying both positive and negative self-beliefs.

It is important to note that a self-belief change is particularly likely to occur both if self-discrepant information doesn't threaten self-knowledge confidence and if there is a commitment to change. But for self-belief change to be most likely, it is most important that self-discrepant information doesn't shake self-knowledge confidence. Self-knowledge confidence is dependent on temporally and cross-situationally stable self-beliefs rather than on cognitive consistency. If self-belief change occurs only because there is a commitment to accepting self-discrepant information, self-knowledge confidence threat is likely to remain, and eventually, to undermine the change.

People's desire to maintain the perception that they know themselves well affects whether they change their self-beliefs. This has not been taken into the account in the literature on self-belief change to date. Doing so advances understanding of self-belief change. It affords a unique perspective on when self-belief changes will occur and it provides a different perspective on when and why the conditions for self-belief change specified by the self-presentation and self-verification perspectives must be met. All things being equal, people question whether they know themselves when they receive information that is discrepant with one of their self-beliefs. In order to remain confident in their self-knowledge, they don't change that self-belief. People only change their self-

beliefs when their self-knowledge confidence isn't threatened by self-discrepant

information, or if it is, when they are otherwise committed to change.

Self-Affirmation Theory, Redux?

      At first glance, the perspective that self-belief change is mediated by self-

knowledge confidence threat is strikingly similar to self-affirmation theory (Steele,

1988). Self-affirmation theory grew as an extension of cognitive dissonance theory

(Festinger, 1957). According to self-affirmation theory, people desire to maintain the

belief that they are "competent, good, coherent, unitary, stable, capable of free-choice,

capable of controlling important outcomes, and so on" (Steele, 1988, p. 262), or more

generally, a favorable self-view (McQueen & Klein, 2006). Favorable self-views are

threatened by both cognitive inconsistencies and negative self-relevant information,

particularly when beliefs held with importance are involved (Sherman & Cohen, 2006).

When self-worth is threatened by cognitive inconsistencies, it can be restored by reducing

dissonance (Steele & Liu, 1983). When self-worth is affirmed, inconsistencies and

negative information are accepted as a result of the recognition that self-worth is not

dependent on any particular belief and the perception that the information is both

believable and valuable (Sherman & Cohen, 2006).

      Self-affirmation effects are most likely when an important value unrelated to the

threatened domain is affirmed (Cohen, Aronson, & Steele, 2000; Steele, 1988), although

other means of boosting positive self-worth may suffice (Blanton, Cooper, Skurnik, &

Aronson, 1997). Moreover, affirmations are sought from unrelated domains following a

threat (Aronson, Blanton, & Cooper, 1995). Along these lines, affirmations have

beneficial effects, regardless of whether they occur prior to or after threatening

information (Sherman, Nelson, & Steele, 2000). In regards to self-belief change, Aronson, Cohen, and Nail (1999) assert that people de-identify with a domain of interest after success in that domain has been challenged. Importantly, self-affirmation theory has yet to be tested in the domain of self-belief change.

Thus, people are more likely to change negative self-beliefs than positive self-beliefs. Moreover, people are particularly likely to change their self-beliefs when their favorable self-view is affirmed by recognizing an important value. Change is thought to be both equally likely and equally sustained regardless of whether self-affirmation occurs before or after a self-belief is challenged.

The new perspective on self-belief change offered herein differs from self-affirmation theory on a number of fronts. It is derived from self-verification theory and is focused on people's desire to maintain self-knowledge confidence. Self-knowledge confidence can be both bolstered and threatened by information about either positive or negative self-beliefs, particularly when information is about self-beliefs that are held with certainty. Moreover, given that self-knowledge confidence is dependent on temporally and cross-situationally stable self-beliefs, self-knowledge confidence is not necessarily restored by eliminating any inconsistencies that arise. Finally, self-knowledge confidence is maintained when it is bolstered before self-inconsistent information is received.

Thus, people are equally likely to change positive and negative self-beliefs particularly when their self-knowledge confidence is bolstered by verifying either positive or negative self-beliefs that are held with certainty prior to the self-belief challenge. Change is more likely to be maintained over time and across situations when it occurs because self-knowledge confidence isn't threatened.

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Overview of Current Research

Does verifying a self-belief bolster self-knowledge confidence, and does challenging a self-belief threaten self-knowledge confidence? Does verifying a self-belief prevent a self-belief challenge from threatening self-knowledge confidence and thus afford change of a different self-belief? Is this likely only if a belief is verified prior to the self-belief challenge? Are these effects dependent on the certainty with which the self-belief is held? I conducted two experiments to answer these questions. In the first study, I tested the prediction that self-knowledge confidence is bolstered when a self-belief is verified and threatened when a self-belief is challenged, particularly when that self-belief is held with certainty. In the second study, I examined whether self-beliefs are more likely to change when self-knowledge confidence is maintained. I tested whether self-beliefs are more likely to change when they are challenged after a different self-belief that is held with certainty is verified, and whether this is particularly true when the self-belief that is challenged is also held with certainty. Moreover, I tested whether uncertain self-beliefs are more likely to change than are certain self-beliefs.

In both studies, I presented participants with feedback that verified and challenged their self-beliefs. Self-belief feedback consisted of statements about the self-descriptiveness of trait adjectives. To ensure that participants perceived self-discrepant information as inconsistent with their self-beliefs, and thus, as a self-belief challenge, participants were presented with self-discrepant information that was within their latitudes of rejection. To be consistent with the form of self-belief challenging feedback, self-verifying information took the form of information that was within their latitudes of acceptance.

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To control for any influence that variability in people's self-beliefs and thus variability in feedback about their self-beliefs would have on their reactions to the feedback, I wanted to deliver feedback about the same self-belief to all participants and I wanted to deliver the same feedback to all participants within each condition. Accordingly, initial study sessions were conducted in order to identify people who endorsed the same particular trait adjectives as self-descriptive. These participants were invited to participate in experimental sessions during which they received feedback. Self-belief-challenging feedback was comprised of statements that, on average, were within participants' latitudes of rejection. Self-belief verifying feedback was comprised of statements that, on average, were within participants' latitudes of acceptance. Consistent with a study by Swann and Ely (1984) on the relation between self-belief certainty and self-verification, participants were considered certain and uncertain of their self-beliefs if their response to a measure of self-belief certainty was above and below the median, respectively, at the initial study sessions.

I wanted to minimize the number of participants that I needed to recruit to participate in the initial study sessions. In general, people are more likely to endorse positive rather than negative trait adjectives as self-descriptive (Sedikides, 1993; Taylor & Brown, 1988). Therefore, I asked participants to indicate the extent to which particular positive trait adjectives were self-descriptive. Moreover, these adjectives were identified in a pilot study as likely to be endorsed by a large number of participants. Accordingly, feedback was always about positive trait adjectives.

Pilot Study

The primary purpose of this pilot study was to identify two positive trait adjectives that a large percentage of the student population believes are self-descriptive. These adjectives would likely be endorsed as self-descriptive by a large number of participants in the initial study sessions of the primary studies, and thus asking about them would maximize the number of participants that I could select to participant in the experimental study sessions.

Method

Participants

I recruited 59 students from the University of Minnesota (61% female, 83% White, 64% college freshmen, age $M = 18.86$ years, $SD = 1.99$) to participate in this study. By recruiting this number of participants, 80% confidence was achieved that the same percentage of participants would endorse the positive trait adjectives as self-descriptive in the focal studies. All were awarded one extra-credit point for their participation as part of the Research Experience Program.

Measures

Demographics. Participants indicated their gender, age, ethnicity, and year in school.

Self-beliefs. By circling a number on a 7-point scale ranging from 0 to 6 (0 = not at all, 2 = slightly, 4 = quite, 6 = extremely), participants indicated the extent to which they believed the following 22 positive trait adjectives described them: *fun, intelligent, friendly, outgoing, courageous, kind, happy, thoughtful, considerate, unselfish, warm, independent, genuine, pleasant, nice, honest, responsible, realistic, understanding,*

self-confident, creative, conscientious. These adjectives were selected from a list

provided by Anderson (1968). Trait adjectives were considered descriptive of a

participant if he/she indicated that it was at least "quite descriptive." Answers were

recoded such that 0 to 3 indicated that the trait adjective is not self-descriptive and 4 to 6

indicated that the trait adjective is self-descriptive.

Procedure

Students from the University of Minnesota were recruited to participate in a

"personality assessment" study. In a mass-test session, participants completed a paper-

and-pencil questionnaire that included the questions about their self-beliefs and

demographic characteristics.

Results and Discussion

The proportions of participants who indicated that the trait adjectives were self-

descriptive, organized from the highest to the lowest proportion, are presented in Table 1.

I selected the trait adjectives independent and outgoing for use in the remaining studies.

On one hand, relatively fewer participants endorsed these trait adjectives as self-

descriptive and thus relatively larger sample sizes would be required for the remaining

studies. On the other hand, these traits were used in previous studies on self-belief change

(e.g., Schlenker & Trudeau, 1990; Tice, 1992), and using these traits would be consistent

with those studies. Moreover, responses about these adjectives were normally distributed

(independent $M = 4.24$, $SD = .95$, $skew = -.01$, $kurtosis = -.61$; outgoing $M = 4.02$, $SD = 1.20$, $skew = -.284$, $kurtosis = -.353$), and these adjectives have relatively neutral

Table 1

Proportions of Participants Endorsing the Trait Adjectives as Self-Descriptive, Pilot

Study

Trait adjective	Proportion
Kind	94.9
Genuine	84.9
Friendly	93.2
Nice	93.2
Responsible	93.2
Honest	91.5
Understanding	91.5
Thoughtful	89.8
Pleasant	89.8
Realistic	89.8
Fun	88.1
Considerate	88.1
Warm	88.1
Intelligent	86.4
Happy	84.7
Conscientious	84.7

Note. n = 59

Table 1 (Continued)

Proportions of Participants Endorsing the Trait Adjectives as Self-Descriptive, Pilot
Study

Trait adjective	Proportion
Independent	76.3
Outgoing	69.5
Unselfish	62.7
Self-confident	62.7
Creative	50.8
Courageous	49.2

Note. n = 59

evaluative connotations and ambiguous meanings. Thereby, using these adjectives would
make it easier to manipulate participants' beliefs about the extent to which these
adjectives described them.

Study 1

The purpose of Study 1 was to test the prediction that self-knowledge confidence
is bolstered when a self-belief is verified and threatened when a self-belief is challenged,
and the prediction that these effects are stronger when the self-belief is held with
certainty.

In an initial study session, college students indicated both the extent to which they
were outgoing, and the extent to which they were certain of this self-belief. Those who
indicated that they were outgoing, half of whom were certain of this, participated in an

experimental study session. Outgoingness certainty was determined by a median split.[3]

Participants in the experimental group were given feedback that either verified or

challenged their self-belief. Participants in the control group were given no self-belief

feedback. After receiving the feedback, participants indicated their self-knowledge

confidence. Thus, this study was a 3 (self-belief feedback: challenging, no feedback,

verifying) X 2 (initial outgoingness certainty: uncertain, certain) experiment.

The study tested the hypotheses described below. The first two are in regards to

the effects of self-belief feedback, and the third is in regards to the interaction between

self-belief feedback and initial self-belief certainty.

People's self-knowledge confidence will be bolstered when one of their self-

beliefs is verified.

> Participants in the verifying condition will report more self-knowledge confidence
> than participants in the challenging and no feedback conditions.

People's self-knowledge confidence will be threatened when one of their self-

beliefs is challenged.

> Participants in the challenging condition will report less self-knowledge
> confidence than participants in the verifying and no feedback conditions.

People's self-knowledge confidence will be bolstered and threatened by having

one of their self-beliefs verified and one of their self-beliefs challenged, respectively,

particularly when they are certain of those self-beliefs.

> There will be an interaction between self-belief feedback condition and initial
> outgoingness certainty, such that the differences in self-knowledge confidence
> between feedback conditions will be larger amongst those who are initially certain
> that they are outgoing than amongst those who are initially uncertain that they are
> outgoing.

Method

Participants

I recruited 478 students from the University of Minnesota (*n* = 308) and St. Olaf

College (*n* = 170) to participate in the initial study session (60.7% female, 82.8% White,

55.6% college freshmen, age *M* = 19.2, *SD* = 1.6). Of these, 138 participants who

indicated that they were outgoing, half of whom were certain of this belief, participated in

the experimental session (University of Minnesota *n* = 104, St. Olaf *n* = 34, 66.7%

female; 80.4% White; 59.4% college freshmen; age *M* = 19.2, *SD* = 1.7). Within each

level of self-belief certainty, these participants were randomly assigned to the three

feedback conditions. Participants from the University of Minnesota were awarded one

and two extra credit points for the initial and experimental study sessions, respectively, as

part of the Research Experience Program. Participants from St. Olaf College were

awarded one course-required research credit for each session.

Measures

Demographics. At the initial study session, participants indicated their gender,

age, ethnicity, and year in school.

Outgoingness. At the initial study session, participants indicated the extent to

which they believed they were outgoing by circling a number on a scale ranging from 0

to 6 (0 = not at all, 2 = slightly, 4 = quite, 6 = extremely). Participants were considered

outgoing if they indicated that they were at least "quite" outgoing.[4]

Outgoingness latitudes of acceptance/rejection. At the initial study session, by

writing check marks over any of the remaining numbers on the outgoingness scale,

participants indicated which answers about being outgoing they considered acceptable

alternatives to their first answer, or answers that they would find tolerable if for some reason their first answer wasn't an option. In addition, by writing the letter X over any of the remaining numbers on the same scale, participants indicated which answers about being outgoing they considered unacceptable alternatives to their first answer, or answers that they wouldn't find tolerable at all or want to provide even if their first answer wasn't an option. A similar strategy was employed by Schlenker and Trudeau (1990) to establish participants' latitudes of acceptance and rejection, respectively.

Outgoingness certainty. At the initial study session, participants indicated the extent to which they were certain they were outgoing on a 0 (not at all certain) to 6 (extremely certain) scale. This measure of certainty is similar to that used by Pelham and Swann (1989). At pretest, the median response on the scale was 4. Those who scored above the median were considered certain of their outgoingness, and those who scored at-or-below the median were considered uncertain of their outgoingness.

Self-knowledge confidence. At the initial study session and after the feedback, participants indicated the extent to which they were confident about their self-knowledge by responding to 12 items on a 0 (not at all true of me) to 6 (extremely true of me) scale. Initial study session items were adapted from Campbell et al.'s (1996a) self-concept clarity scale and reflected chronic self-knowledge confidence (e.g., "I spend a lot of time wondering about what kind of person I really am.").[5] Post-feedback items were modified to reflect state self-knowledge confidence (e.g., At this moment I wonder about what kind of person I really am."). Responses to the items were averaged to create a single indicator of self-knowledge confidence, with higher numbers reflecting more self-knowledge

confidence. Amongst the experimental participants, this scale demonstrated good reliability at both study time points (initial study session α = .89, post-feedback α = .92).

Procedure

Students from the University of Minnesota and St. Olaf College were recruited to participate in a "personality study." In a mass-test session, participants completed a paper-and-pencil questionnaire packet that included questions about their self-beliefs, latitudes of acceptance/rejection related to those self-beliefs, the certainty of their self-beliefs, their self-knowledge confidence, and demographic characteristics. Participants were also given the opportunity to provide their e-mail address if they were willing to be contacted to participate in the experimental session, which they were told was an additional study during which they would receive personality feedback. Participants who indicated that they were outgoing and provided their e-mail address were invited via e-mail to participate individually in the experimental session. On average, 11.4 days (*SD* = 5.8) elapsed between the initial and experimental sessions.

Upon individually arriving at the lab for the experimental session, participants were informed that they were about to participate in a study that was a part of the development of a new computer-based personality assessment, and thus that the study would be conducted entirely on the computer, that they would be asked to answer a series of personality questions, and that they would be provided with personality feedback based on their answers to the questions. On the computer and using the E*Prime program (Schneider, Eschmann, & Zuccolotto, 2002), participants were presented with more information about the personality assessment, responded to a series of personality

questions, were presented with personality feedback, and then indicated their self-knowledge confidence.

All participants were presented with the same information. However, participants in the *no feedback* condition received slightly different information to reflect that they would not receive feedback about themselves. They were informed that they would receive "example" feedback to demonstrate its form. Their feedback was labeled as example feedback in order to clarify that it was not personal feedback. The information, with differences in the *no feedback* condition presented in brackets, was as follows:

> We are developing a personality test for eventual use by both personality researchers and businesses that want to assess people's personalities. People's personalities are usually tested by manually analyzing their answers about their personalities that they provide on paper. Unfortunately, this takes time and people are not quickly provided with personality feedback. We are developing a computer-based personality test that can quickly analyze people's answers about their personalities and quickly provide them with personality feedback.

> There are many accessible computer-based personality tests. However, most analyze and provide feedback about general personality characteristics. The computer-based test that we are developing analyzes and provides feedback about specific personality traits.

> We are currently in the final trial phases of the development of this personality test. So far, the test has performed well. We have received good feedback about its ability to analyze and provide personality feedback. People express a number of personality traits and eventually we will have the capability to provide feedback about many personality traits. However, at this point we are only testing and providing people with feedback about one trait. [Added for the *no feedback* condition: Because today we are focused on making sure that we are correctly analyzing people's answers to their questions about this trait, we cannot give you feedback about your specific personality. But, we will provide you with example feedback about this trait to demonstrate the form of the feedback.]

> In this study today you will first answer a series of questions about this aspect of your personality. The computer will then analyze your answers to the questions. Following this, you will be provided with feedback about this aspect of your personality [*No feedback* condition: Following this, you will be provided with

example feedback about this personality aspect.]. The test begins on the next screen.

The information was presented across five screens for participants in the *verifying* and *challenging* conditions, and six screens for participants in the *no feedback* condition. Except for the last screen, each was displayed for 30 seconds. Participants were then asked to respond to a series of 16 statements from the Texas Social Behavior Inventory (Helmreich & Stapp, 1974). Each statement was presented on a separate screen. Participants indicated their responses by pressing a number key on the top row of the computer keyboard.

Participants then waited for 30 seconds while the computer ostensibly processed their answers to the questions before receiving personality feedback. All participants were presented with feedback about outgoingness. Within each condition, participants received the exact same feedback. The feedback was bogus, given that it was pre-set depending on feedback condition and was not based on responses to the preceding 16 statements. The feedback was presented for 15 seconds via both a statement and a graph, and was in the form of the descriptors of scales on which participants indicated the extent to which they were outgoing at the initial study session (Figure 2).

Based on participants' initial study session responses about their outgoingness, it was determined that, on average, participants considered being "quite" outgoing within their latitudes of acceptance (Range = 3.13 to 5.46). Thus, I expected them to perceive feedback based on this descriptor as consistent with their self-beliefs. Accordingly, participants in the *verifying* condition were presented with the following feedback:

You are *quite* an outgoing person.

Figure 2. *Self-belief Feedback Manipulation, Study 1*

<u>Verifying feedback</u>

You are *quite* an outgoing person.
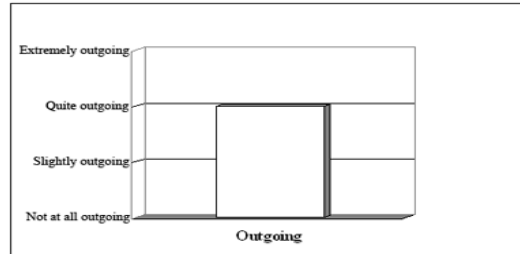
<u>Challenging feedback</u>

You are a *slightly* outgoing person.
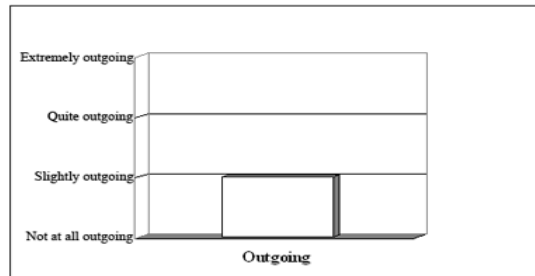
<u>No feedback feedback</u>

Example feedback: You are *quite* an outgoing person.
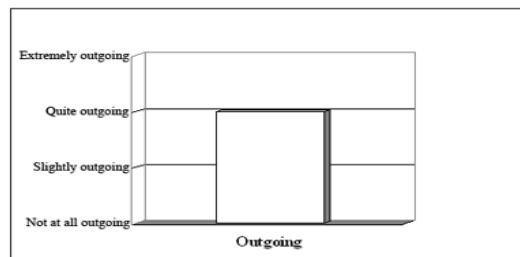
On average, participants considered being "slightly" outgoing within their latitude of rejection, and thus were expected to perceive feedback based on this descriptor as self-belief inconsistent (Range = 0 to 2.13). Accordingly, participants in the *challenging* condition were presented with the following feedback:

You are a *slightly* outgoing person.

Participants in the *no feedback* condition were presented with the following feedback:

Example feedback: You are *quite* an outgoing person.

Thus, participants in this condition did not receive feedback about themselves, but read the same amount of material about outgoingness as participants in the other conditions.

Participants then completed the self-knowledge confidence measure. As with initial personality statements, each statement was presented on a separate screen, and participants indicated their responses by pressing a number key on the top row of the computer keyboard. Finally, participants were fully debriefed. Particular care was given to make sure that participants in the *challenging* condition understood that the feedback was bogus.

Results

Experimental sample and initial study session differences. Eleven experimental participants were excluded from analyses because they were either wrongly placed in a condition (*n* =5) or detected the experimental deception (*n* = 6).[6] Thus, the analyses reported below are based on 127 experimental participants.

Students from the two different schools were evenly distributed across self-belief feedback condition and level of initial outgoingness certainty, and there were no baseline differences between them, all *p*'s >.10. There were initial differences across self-belief feedback condition and outgoingness certainty. Ethnicity differed across self-belief feedback conditions, given that there were fewer White participants amongst those in the challenging condition (65.9%) than amongst those in the no feedback (90.9%) and verifying (81.0%) conditions, $F(2, 121) = 4.13$, $p < .05$. Self-reports of outgoingness

differed across initial outgoingness certainty, such that those who were initially certain that they were outgoing reported that they were more outgoing ($M = 4.93$, $SE = .08$) than those who were initially uncertain that they were outgoing ($M = 4.29$, $SE = .08$), $F(1, 121) = 35.82$, $p < .001$. In addition, self-knowledge confidence did not differ between either self-belief feedback conditions, $F(2, 121) = 1.19$, $p > .10$, or initial outgoingness certainty levels, $F(1, 121) = 2.29$, $p > .10$. However, the pattern of means was generally in line with predictions regarding post-feedback self-knowledge confidence. Those in the verifying condition reported more self-knowledge confidence than those in the challenging condition, particularly those who were initially certain that they were outgoing. Moreover, initial and post-feedback self-knowledge confidence were strongly correlated, $r(126) = .70$, $p < .001$. Therefore, I controlled for ethnicity, initial outgoingness, and initial self-knowledge confidence in all of the analyses below.

    Self-knowledge confidence. Because I expected that there would be a specific linear trend in post-feedback self-knowledge confidence across the feedback conditions, and that it would differ in strength across levels of initial outgoingness certainty, I conducted a two-way (self-belief feedback: challenging, none, verifying) X (initial outgoingness certainty: uncertain, certain) ANCOVA with two sets of two planned orthogonal contrast tests. The first set comprised the main effect contrast tests; the first test contrasted the verifying condition against the challenging and no feedback conditions, and the second test contrasted the challenging condition against the no feedback condition. The second set comprised the interaction contrast tests. The uncertain and certain groups were assigned contrast weights of -1 and 1, respectively, and each of these weights was multiplied by each of the main effect contrast weights. This resulted in

main effect contrast weights that were opposite in sign across levels of initial

outgoingness certainty (see Table 2 for the main effect contrast weights and Table 3 for

the interaction effect contrast weights).

Table 2

Planned Main Effect Contrast Weights for Study 1 Analyses

	Challenging	No Feedback	Verifying
Contrast 1	-1	-1	2
Contrast 2	-1	1	0

Table 3

Planned Interaction Effect Contrast Weights for Study 1 Analyses

	Uncertain			Certain		
	Challenging	No feedback	Verifying	Challenging	No feedback	Verifying
Contrast 1	1	1	-2	-1	-1	2
Contrast 2	1	-1	0	-1	1	0

I expected an effect of self-belief feedback such that those in the verifying

condition would indicate more post-feedback self-knowledge confidence than those in the

challenging and no feedback conditions. I also expected that participants in the

challenging condition would report less self-knowledge confidence than participants in

the no feedback condition. There was neither an effect of verifying feedback compared to challenging feedback and no feedback, nor an effect of challenging feedback compared to no feedback, both p's > .10. Means were essentially identical across the feedback conditions (Table 4).

Table 4

Self-Knowledge Confidence by Self-Belief Feedback, Study 1

	Challenging	No Feedback	Verifying
M	4.28	4.34	4.36
SE	.13	.12	.12
n	41	44	42

Note. Means are adjusted for ethnicity, initial outgoingness, and initial self-knowledge confidence.

I expected an interaction between self-belief feedback condition and initial outgoingness certainty, such that the differences in self-knowledge confidence between the feedback conditions would be larger amongst those who were initially certain that they were outgoing than amongst those that were initially uncertain that they were outgoing.

Initial outgoingness certainty marginally moderated the differences in self-knowledge confidence between those in the verifying condition and those in the challenging and no feedback conditions, $F(1, 118) = 2.88$, $p < .10$, $\eta^2 = .02$. Interestingly,

this effect was not due to a larger difference amongst those who were initially certain that they were outgoing than amongst those who were initially uncertain that they were outgoing. Amongst participants who were initially certain that they were outgoing, those in the verifying condition reported more self-knowledge confidence than those in the challenging and no feedback conditions. Contrary to expectations, amongst those who were initially uncertain that they were outgoing, those in the verifying condition reported less self-knowledge confidence than those in the challenging and no feedback conditions. Initial outgoingness certainty did not significantly moderate the differences in self-knowledge confidence between those in the challenging condition and no feedback condition, $p > .10$. Yet, unlike the previous interaction, means were consistent with expectations. There were larger differences between the two feedback conditions amongst those who were initially certain that they were outgoing than amongst those who were initially uncertain that they were outgoing. Amongst those who were initially certain that they were outgoing, participants in the challenging condition reported less self-knowledge confidence than participants in the no feedback condition. Amongst participants who were initially uncertain that they were outgoing, participants in the challenging condition reported essentially the same level of self-knowledge confidence as those in the no feedback condition (Table 5).

Discussion

This study tested the predictions that self-knowledge confidence is bolstered when a self-belief is verified and threatened when a self-belief is challenged, and the prediction that these effects are stronger when the self-belief is held with certainty. Results partially supported the predictions. Namely, the results showed that self-knowledge confidence is

Table 5

Self-Knowledge Confidence by Self-Belief Feedback and Initial Outgoingness Certainty, Study 1

	Uncertain			Certain		
	Challenging	No feedback	Verifying	Challenging	No feedback	Verifying
M	4.37	4.38	4.18	4.17	4.31	4.56
SE	.18	.18	.17	.19	.18	.18
n	21	22	22	20	22	20

Note. Means are adjusted for ethnicity, initial outgoingness, and initial self-knowledge confidence.

bolstered when a self-belief that is held with certainty is verified. Thus, the results provide initial empirical support for the assertions made by Swann and colleagues (Swann, 1984; Swann, 1990; Swann, 1997) that self-knowledge confidence is bolstered when beliefs about the self are verified and threatened when beliefs about the self are challenged, particularly when those beliefs are held with certainty. Moreover, the results suggest that challenges to self-beliefs are less likely to threaten self-knowledge confidence when it has been bolstered by verification of certainly held self-beliefs.

Contrary to expectations, the results showed that self-knowledge confidence is threatened by verification of uncertain self-beliefs. Anseel and Lievens (2007) observed that people were less likely to desire and to seek feedback about their moderately uncertain self-beliefs than about their extremely uncertain self-beliefs. On average, the

experimental participants in the current study reported being relatively certain that they were going ($M = 4.65$, $SD = .99$, $min = 3$, $max = 6$). Participants who were considered uncertain of their outgoingness can more accurately be considered moderately uncertain of their outgoingness. The verifying feedback may have threatened their self-knowledge confidence because it was non-diagnostic and therefore invoked more uncertainty. If they would have been extremely uncertain of their outgoingness, the verifying feedback may have bolstered their self-knowledge confidence as expected because it may have been informative and reduced uncertainty.

Interestingly, inspection of the differences between initial, "chronic" self-knowledge confidence and post-feedback, "state" self-knowledge confidence revealed that self-knowledge confidence increased for all participants regardless of their self-belief certainty or the feedback that they received. Thus, one could argue that all effects in this study were relative to increases in self-knowledge confidence. For instance, one could argue that amongst participants who were certain that they were outgoing, self-knowledge confidence merely increased more amongst those who received verifying feedback than amongst those who received no feedback or challenging feedback. Nezlek and Plesko (2001) observed that chronic self-knowledge confidence related to variability in state self-knowledge confidence over time, but not state self-knowledge confidence at any particular point in time. The relationship between chronic self-knowledge confidence and state self-knowledge confidence at any particular point in time needs further exploration. The observation in Study 1 that state self-knowledge confidence was higher than chronic self-knowledge confidence even for those in the no feedback condition suggests that state self-knowledge confidence is naturally higher than chronic self-

knowledge confidence, particularly when people are evaluating themselves within a particular situation. It may be that state self-knowledge confidence is of utmost concern when responding to self-belief feedback and more critical to self-belief change. Along these lines, additional analyses provided no indication that chronic self-knowledge confidence regulated participants' responses to self-belief feedback, all p's > .10.

The self-belief feedback manipulation was effective. Participants responded to the self-belief feedback manipulation as intended, perceiving feedback that was in their self-beliefs' latitudes of acceptance and rejection as self-consistent and self-inconsistent, respectively. In fact, a series of regression analyses indicated that within each feedback condition, variability in the difference between participants' outgoingness and the feedback that they received did not influence their responses to the feedback.

Unfortunately, the effects in this study were weak. On one hand, this suggests that people's self-knowledge confidence is fairly stable and that it doesn't play a critical role in whether they change their beliefs about themselves. On the other hand, the pattern of means was in line with the study predictions, particularly amongst those who were certain of their self-belief. And given the effect of verifying an uncertain self-belief, it is not surprising that there were no main effects of feedback.

As will be addressed further in the general discussion, the weak effects may in part be attributed to a weak manipulation. However, the same feedback method was used in Study 2. Fortunately, the results of Study 1 served to suggest that challenges to self-beliefs are less likely to threaten self-knowledge confidence when it has been bolstered by verification of certainly held self-beliefs. The observation that verification of an uncertain self-belief threatens self-knowledge confidence had no implications for Study

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2, in which uncertain self-beliefs were not verified. Moreover, the results of Study 1 did

not rule out the possibility of other effects of self-belief feedback and self-belief certainty

that were assessed in Study 2, including effects on motivation to verify a self-belief,

openness to feedback about a self-belief, and self-belief change.

Study 2

The primary purpose of Study 2 was to examine whether self-beliefs will be more

likely to change when self-knowledge confidence is maintained. I tested whether self-

beliefs are more likely to change when they are challenged after a different self-belief

that is held with certainty is verified, and whether this is particularly true when the self-

belief that is challenged is also held with certainty. Moreover, I tested whether uncertain

self-beliefs are more likely to change than are certain self-beliefs.

In an initial study session, college students indicated the extent to which they

were independent and outgoing, and the extent to which they were certain of their self-

beliefs. As in Study 1, independence and outgoingness certainty were determined by a

median split. In a second experimental session, participants' beliefs about their

outgoingness were targeted for change, and their beliefs about their independence were

targeted for verification. Feedback that verifies a certainly held self-belief is most likely

to bolster self-knowledge confidence and thus to prevent a self-belief challenge from

threatening self-knowledge confidence. Therefore, those who indicated that they were

outgoing, half of whom were certain of this belief, participated in an experimental session

only if they also indicated that they were certain that they were independent.

In the experimental session, participants in the control group were given no self-

belief feedback. Of those in the experimental groups, all were presented with feedback

that challenged their beliefs about their outgoingness. Some were also presented with feedback that verified their beliefs about their independence, and of these, half were presented with this feedback after they were presented with the feedback that challenged their beliefs about their outgoingness. All dependent variables were assessed after the feedback about both self-beliefs was delivered. Participants were asked to indicate their self-knowledge confidence, motivation to verify outgoingness, openness to the outgoing feedback, outgoingness, outgoingness latitudes of acceptance/rejection, and outgoingness certainty. In addition, deliberation about outgoingness was assessed via reaction time to the outgoingness measure.[7] The outgoingness, outgoingness latitude of acceptance, outgoingness certainty, and deliberation about outgoingness measures were all considered indicators of self-belief change. This afforded converging evidence of self-belief change. This study was a 4 (self-belief feedback: challenging-only, challenging/verifying, no feedback, verifying/challenging) X 2 (initial outgoingness certainty: uncertain, certain) experiment.

Descriptions of the study hypotheses are below, organized by the effects of self-belief feedback, initial self-belief certainty, and the interaction between self-belief feedback and initial self-belief certainty.

The Effects of the Self-Belief Feedback

People's self-knowledge confidence won't be threatened when one of their self-beliefs that they hold with certainty is verified before a different one of their self-beliefs is challenged. Moreover, their self-knowledge confidence will be bolstered by having one of their certain self-beliefs verified. In addition, they will be open to accepting the self-

inconsistent information and they won't be motivated to verify their self-belief that is challenged. As a result, they will change their self-belief that is challenged.

> Participants in the verifying/challenging condition will report being more confident in their self-knowledge, more open to the feedback that suggests that they are less outgoing than they thought, and less motivated to verify that they are outgoing than participants in the other three conditions.
>
> As a result, participants in the verifying/challenging condition will report that they are less outgoing, will report that they are less certain that they are outgoing, and will deliberate longer about the extent to which they are outgoing than participants in the other three conditions. In addition, they will report wider outgoingness latitudes of acceptance than participants in the other three conditions, primarily because the lowest point in their latitudes of acceptance will be smaller in value.

People's self-knowledge confidence will be restored by having a self-belief that they hold with certainty verified after they have a self-belief challenged. But they will defensively process the self-inconsistent information and they will make efforts to verify the self-belief that is challenged. As a result, they will not change their self-belief that is challenged.

> Participants in the challenging/verifying condition will report being less confident in their self-knowledge than participants in the verifying/challenging condition, but more confident in their self-knowledge than participants in the challenging-only and no feedback conditions. Like participants in the challenging-only condition, they will be less open to the feedback that suggests that they are less outgoing than they thought, and more motivated to verify that they are outgoing than participants in the verifying/challenging and no feedback conditions.

People's self-knowledge confidence will be threatened when one of their self-beliefs is challenged without having a different one of their self-beliefs that they hold with certainty verified. In addition, they won't be open to accepting self-inconsistent information and they will be motivated to verify their self-belief that is challenged. They will not change their self-belief that is challenged.

> Participants in the challenging-only condition will report being less confident in their self-knowledge than those in the other three conditions. In addition, they will report being less open to accepting the feedback that suggests that they are less outgoing than they thought and more motivated to verify that they are outgoing than participants in the verifying/challenging and no feedback conditions.

The Effects of Initial Self-Belief Certainty

People's self-knowledge confidence won't be threatened when their uncertain self-beliefs are challenged. Rather, they will perceive that the self-inconsistent feedback is informative and their self-knowledge confidence will be bolstered. In Study 1, amongst those who were given self-inconsistent feedback, those who were uncertain that they were outgoing reported more self-knowledge confidence than those who were certain that they were outgoing. They will also be open to accepting the self-inconsistent information and they won't be motivated to verify their self-beliefs. As a result, they will change their self-beliefs.

> Participants who are initially uncertain that they are outgoing will report being more confident in their self-knowledge, more open to the feedback that suggests that they are less outgoing than they thought, and less motivated to verify that they are outgoing than participants who are initially certain that they are outgoing.

> As a result, participants who are initially uncertain that they are outgoing will report that they are less outgoing, will report wider outgoingness latitudes of acceptance, will report that they are less certain that they are outgoing, and will deliberate longer about the extent to which they are outgoing than participants who are initially certain that they are outgoing.

The Interaction Between the Self-Belief Feedback and Initial Self-Belief Certainty

Particularly when people's certain -- as opposed to uncertain -- self-beliefs are challenged, people's self-knowledge confidence will be threatened, they will be unlikely to accept self-inconsistent information, they will be motivated to verify their self-beliefs that are challenged, and they will be unlikely to change their self-beliefs that are

challenged. When people are certain of their self-beliefs, the nature of feedback that they receive will play a strong role in how they react to it. Their reaction will be greatly affected by whether one of their certain self-beliefs is previously verified.

> There will be an interaction between self-belief feedback condition and initial outgoingness certainty, such that the effects of the self-belief feedback will be stronger amongst those who are initially certain that they are outgoing. The differences in responses between the self-belief feedback conditions will be larger amongst those who are initially certain that they are outgoing than amongst those that are initially uncertain that they are outgoing. Most importantly, the differences in responses between the verifying/challenging and other three conditions will be larger amongst those who are initially certain that they are outgoing than amongst those who are initially uncertain that they are outgoing.

Method

Participants

I recruited 1024 students from the University of Minnesota to participate in the initial study session (64% female, 75% White, 45% college freshmen, age $M = 20.3$, $SD = 3.4$). Of these, 119 participants who indicated that they were both outgoing -- half of whom were certain about this belief -- and independent -- all of whom were certain about this belief -- participated in the experimental session (64% female; 74% White; 64% college freshmen; age $M = 19.7$, $SD = 2.9$). Within each level of initial outgoingness certainty, these participants were randomly assigned to the four feedback conditions. Participants were awarded one and two extra-credit points for the initial and experimental study sessions, respectively, as part of the Research Experience Program.

Measures

The demographic, self-descriptiveness, self-beliefs latitudes of acceptance/rejection, self-belief certainty, and self-knowledge confidence measures used in Study 1 were also used in this study. Demographics were assessed at the initial study

session. Self-descriptiveness, self-belief latitudes of acceptance/rejection, and self-belief certainty were assessed at the initial study session and after the feedback.

At the initial study session, the median response on the independence certainty scale was 5, and the median response on the outgoingness certainty scale was 4. Participants were considered certain that they were independent if their independence certainty response was at-or-above the median response on the scale. Participants were considered certain and uncertain that they were outgoing if their outgoingness certainty response was above and at-or-below the median response on the scale, respectively. Self-knowledge confidence was also assessed at the initial study session (chronic self-knowledge confidence) and after the feedback (state self-knowledge confidence). Amongst the experimental participants, the self-knowledge confidence scale demonstrated good reliability at both time points (initial study session $\alpha = .90$, post-feedback $\alpha = .92$). The following measures were also assessed after the feedback:

Deliberation about outgoingness. As in previous studies (e.g., Markus & Kunda, 1986), the length of time that elapsed between when participants were presented with the outgoingness measure and when they indicated the extent to which they were outgoing was recorded and served as an indicator of deliberation about outgoingness. Reaction time was recorded in milliseconds. A longer reaction time reflected more deliberation about outgoingness. This measure, along with outgoingness, outgoingness latitude of acceptance size, and outgoingness certainty was considered an indicator of self-belief change. For participants included in the analyses ($n = 113$), reaction time was first converted to seconds ($M = 5.70$, $SD = 3.97$). Following the recommendation of Bargh and Chartrand (2000), outliers (+/- 3 SD's; $n = 2$) were removed, resulting in a reduced

mean reaction time ($M = 5.40$, $SD = 3.20$). Because reaction times were normally

distributed (*skew* = 1.50, *kurtosis* = 1.63), they were not transformed.

Openness to the outgoing feedback . All participants were asked to separately

indicate how open they were to feedback that suggested that they were less outgoing than

they thought via four items each on a 0 (strongly disagree) to 8 (strongly agree) scale.

Participants who received feedback about a self-belief were asked to indicate their

response to the feedback. In order to maintain response set consistency across all

participants, participants who did not receive feedback about their outgoingness were

asked to indicate their expected response to hypothetical feedback that was similar to the

feedback that other participants received.

Thus, participants in the verifying/challenging, challenging/verifying, and

challenging-only conditions were presented with items that reflected that they received

feedback ("I am satisfied with the feedback about how outgoing I am," "The feedback

was accurate about how outgoing I am," "I received quality feedback about how outgoing

I am," "I would like to learn more information about how outgoing I am") and

participants in the no feedback condition were presented with items that reflected the

feedback that participants in the other three conditions received ("If the feedback

suggested that I am NOT outgoing, I would be satisfied with it," "If the feedback

suggested that I am NOT outgoing, it would be accurate," "If the feedback suggested that

I am NOT outgoing, it would be quality feedback," "If the feedback suggested that I am

NOT outgoing, I would want to learn more information about how outgoing I am").

These items were similar to items used in previous studies in which reactions to

self-relevant feedback were assessed (Bosson & Swann, 1999; Eisenstadt & Leippe,

1994; Petersen, Stahlberg, & Dauenheimer, 2000; Stahlberg, Petersen, & Dauenheimer, 1999; Swann, Wenzlaff, Krull, & Pelham, 1992). Responses to the four items were averaged to form a single indicator of participants' openness to the outgoing feedback, with higher numbers signifying greater openness. The scale demonstrated fair reliability if it included all four items ($\alpha = .75$), but better reliability after eliminating the item about wanting to learn more information ($\alpha = .94$). The three-item scale was retained for analyses.

Motivation to verify outgoingness. All participants were asked to separately indicate their motivation to verify their outgoingness via two items each on a 0 (strongly disagree) to 8 (strongly agree) scale. As with measuring openness to the outgoing feedback, participants who received feedback about their outgoingness were asked to indicate their response to the feedback, whereas participants who did not receive feedback about their outgoingness were asked to indicate their expected response to hypothetical feedback that was similar to the feedback that the other participants received.

More specifically, participants in the verifying/challenging, challenging/verifying, and challenging-only conditions were presented with items that reflected that they received feedback ("I want to prove wrong the feedback about how outgoing I am," "I want to explain how outgoing I think I am") and participants in the no feedback condition were presented with items that reflected the feedback that participants in the other three conditions received (e.g., "If the feedback suggested that I am NOT outgoing, I would want to prove the feedback wrong," "If the feedback suggested that I am NOT outgoing, I would want to explain how outgoing I think I am").

These items were similar to items used in previous studies in which reactions to self-relevant feedback were assessed (Inman, 2002; Tschanz & Rhodewalt, 2001). Responses to the two items were averaged to form a single indicator of participants' motivation to verify outgoingness, with higher numbers signifying greater motivation to self-verify. The scale demonstrated good reliability, $r(113) = .76, p < .001$.[8]

Procedure

The procedure for Study 2 was very similar to the procedure for Study 1. Participants who initially indicated that they were outgoing and that they were certain that they were independent participated in the experimental study session. On average, 11.0 days ($SD = 6.1$) elapsed between the initial and experimental sessions.

Upon arriving individually at the lab for the experimental session, participants were informed that they were about to complete a computer-based personality assessment. On the computer and using the E*Prime program (Schneider et al., 2002), participants were presented with more information about the personality assessment, responded to a series of personality questions, and then were presented with personality feedback. Following this, participants reported in order their self-knowledge confidence, motivation to verify their outgoingness, openness to the outgoing feedback, outgoingness, outgoingness latitudes of acceptance/rejection, and outgoingness certainty.

All participants were presented with similar background information. However, participants in the *no feedback* condition were informed that they would not receive feedback about themselves but would receive example feedback about two traits to demonstrate the form of the feedback. Their feedback was labeled as "example" feedback in order to indicate that it was not personal feedback. Participants in the *challenging-only*

condition were informed that they would receive example feedback about one trait, and

personal feedback about another. To distinguish between the example and personal

feedback, their feedback was labeled as "example" and "actual" feedback, respectively.

The information, with differences in the *no feedback* and *challenging-only* conditions

presented in brackets, was as follows:

> We are developing a personality test for eventual use by both personality researchers and businesses that want to assess people's personalities. People's personalities are usually tested by manually analyzing their answers about their personalities that they provide on paper. Unfortunately, this takes time and people are not quickly provided with personality feedback. We are developing a computer-based personality test that can quickly analyze people's answers about their personalities and quickly provide them with personality feedback.

> There are many accessible computer-based personality tests. However, most analyze and provide feedback about general personality characteristics. The computer-based test that we are developing analyzes and provides feedback about specific personality traits.

> We are currently in the final trial phases of the development of this personality test. So far, the test has performed well. We have received good feedback about its ability to analyze and provide personality feedback. People express a number of personality traits and eventually we will have the capability to provide feedback about many personality traits. However, at this point we are only testing and providing people with feedback about two traits. [Added for the *no feedback* condition: Because today we are focused on making sure that we are correctly analyzing people's answers to their questions about these traits, we cannot give you feedback about these traits. But, we will provide you with example feedback about these traits to demonstrate the form of the feedback. Added for the *challenging-only* condition: Because today we are focused on making sure that we are correctly analyzing people's answers to questions about one of these traits, we cannot give you feedback about this trait. We will only analyze your answers to the questions about this trait. But, we will provide you with example feedback about this trait to demonstrate the form of the feedback. We will, however, both analyze your answers to questions and provide you with actual feedback about the other trait.]

> In this study today you will first answer a series of questions about these aspects of your personality. The computer will then analyze your answers to the questions. Following this, you will be provided with feedback about these aspects of your personality [*No feedback* condition: Following this, you will be provided

with example feedback about these personality aspects. *Challenging-only* condition: Following this, you will be provided with example and actual feedback about these personality aspects.]. The test begins on the next screen.

The information was presented across five screens for participants in the *verifying/challenging* and *challenging/verifying* conditions, and six screens for participants in the *no feedback* and *challenging-only* conditions. Except for the last screen, each was displayed for 20 seconds. Participants were then asked to respond to a series of 16 statements from the Texas Social Behavior Inventory (Helmreich & Stapp, 1974). Each statement was presented on a separate screen. Participants indicated their responses by pressing a number key on the top row of the computer keyboard.

Participants then waited for 30 seconds while the computer ostensibly processed their answers to the questions before receiving personality feedback. All participants were presented with feedback about independence and outgoingness on separate screens. Those in the *verifying/challenging*, *challenging-only*, and *no feedback* conditions were presented with the independence feedback first, whereas those in the *challenging/verifying* condition were presented with the outgoingness feedback first. Within each condition, participants received the exact same feedback. The feedback was bogus, given that it was pre-set depending on feedback condition and was not based on responses to the preceding 16 statements. The feedback was presented for 15 seconds via both a statement and a graph, and was in the form of the descriptors of scales on which participants indicated the extent to which they were independent and outgoing at the pre-test session (see Figure 3).

Based on participants' initial responses about their independence, it was determined that, on average, participants considered the trait adjective

Figure 3. *Self-belief Feedback Manipulation, Study 2*

Verifying/challenging feedback

You are *quite* an independent person.
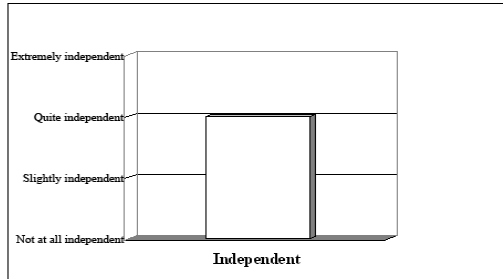
You are a *slightly* outgoing person.
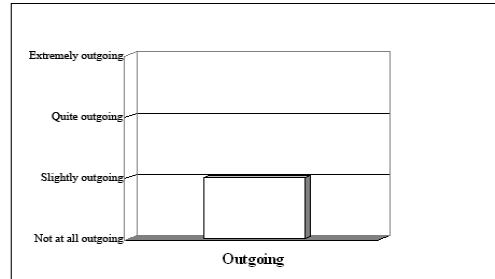
Challenging/verifying feedback

You are a *slightly* outgoing person.
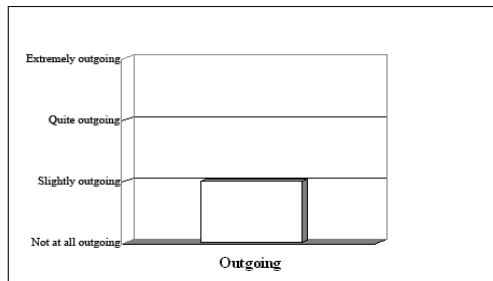
You are *quite* an independent person.
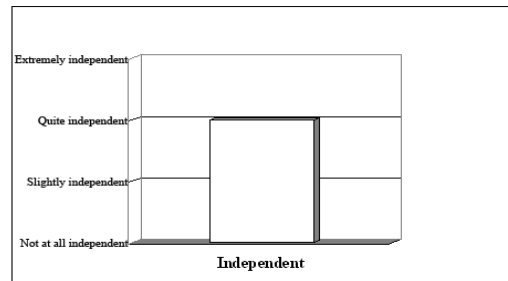
Challenging-only feedback

Example feedback: (Person X is) *quite* an independent person.
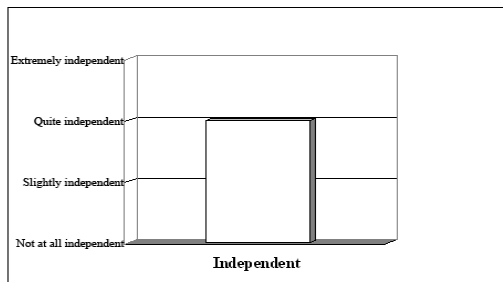
You are a *slightly* outgoing person.
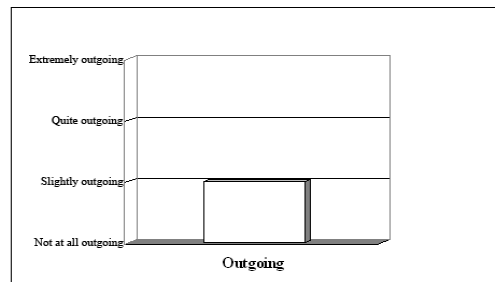
No feedback

Example feedback: (Person X is) *quite* an independent person.
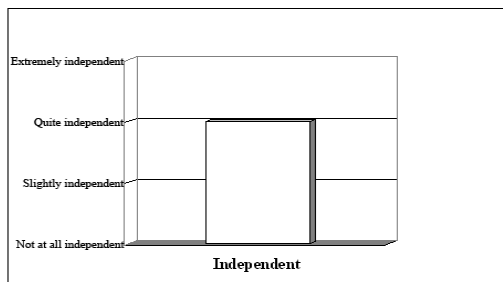
Example feedback: (Person X is) *quite* an outgoing person.
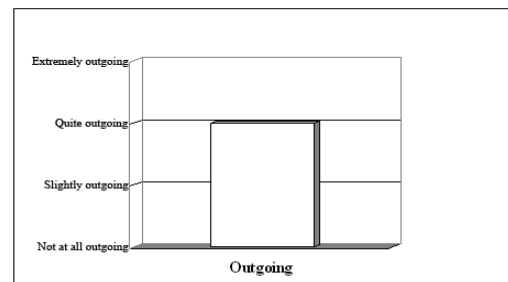
self-descriptiveness scale descriptor "quite" to be within their latitudes of acceptance (Range = 3.39 to 5.68). Thus, I expected them to perceive feedback about their independence based on this descriptor as consistent with their self-beliefs. On average, participants considered the scale descriptor "slightly" to be within their latitudes of rejection about their outgoingness (Range = 0 to 2.14), and thus were expected to perceive feedback about their outgoingness based on this descriptor as inconsistent with their self-beliefs.

Accordingly, participants in the *verifying/challenging* condition were presented with the following feedback, in order on separate screens:

> You are *quite* an independent person.
> You are a *slightly* outgoing person.

This feedback order was reversed for participants in the *challenging/verifying* condition. Participants in the *challenging-only* condition were first presented with example feedback about their independence, then challenging feedback about their outgoingness. To clarify the distinction between the example and actual feedback, the feedback statements were preceded by the statements "Example feedback" and "Actual feedback," respectively. Moreover, to further clarify that the example feedback was not about them, the referent "Person X" was used instead of the referent "You." Thus:

> Example feedback: (Person X is) *quite* an independent person.
> Actual feedback: You are a *slightly* outgoing person.

Participants in the *no feedback* condition were presented with the following example feedback about both their independence and outgoingness in a form that was consistent with the example feedback that participants in the *challenging-only* condition were presented with:

Example feedback: (Person X is) *quite* an independent person.
Example feedback: (Person X is) *quite* an outgoing person.

Participants then reported in order their self-knowledge confidence, motivation to verify their outgoingness, openness to the outgoing feedback, outgoingness, outgoingness latitudes of acceptance/rejection, and outgoingness certainty. As with the initial personality statements, each statement was presented on a separate screen, and participants indicated their responses by pressing a number key on the top row of the computer keyboard. In contrast to the initial study session paper-and-pencil questionnaire, participants indicated their outgoingness, outgoingness latitudes of acceptance, and outgoingness latitudes of rejection on separate screens. Outgoingness latitudes of acceptance/rejection were reported using multiple numbered keys. Finally, participants were fully debriefed. Particular care was given to make sure that participants in the *verifying/challenging*, *challenging/verifying*, and *challenging-only* conditions understood that the feedback was bogus.

<div align="center">*Results*</div>

Overview

Following a description of the experimental sample, I report the primary tests of the study hypotheses, and then an extensive series of follow-up analyses that served to further elucidate the results. All conditions were included in the primary analyses; the no feedback condition was excluded from follow-up analyses. I expected that there would be specific linear trends across self-belief feedback condition and that these trends would differ across levels of initial outgoingness certainty. Therefore, I conducted a series of ANCOVA's with planned orthogonal contrasts. Self-belief feedback condition effects are

reported first, followed by initial outgoingness certainty effects and self-belief feedback condition X initial outgoingness certainty interaction effects. Mediation of the effects of the self-belief feedback and initial self-belief certainty on self-belief change by self-knowledge confidence, motivation to verify outgoingness, and openness to the outgoing feedback was tested with a series of regression analyses using the strategy delineated by Baron and Kenny (1986).

Characteristics of the Experimental Sample

Six experimental participants were excluded from analyses because they were either wrongly placed in a self-belief feedback condition ($n = 3$) or detected the experimental deception ($n = 3$).[9] Thus, the analyses reported below are based on 113 experimental participants.

Primary Analyses of the Study Hypotheses

Initial study session differences in the experimental sample. There were several initial differences amongst participants. Outgoingness latitude of acceptance and self-knowledge confidence differed by feedback condition. The lowest point in the outgoingness latitude of acceptance was smaller in value amongst those in the no feedback condition ($M = 2.60$, $SE = .11$) than amongst those in the challenging-only, challenging/verifying, and verifying/challenging conditions ($M = 3.39$, $SE = .12$; $M = 3.43$, $SE = .12$; $M = 3.35$, $SE = .12$, respectively), $F(3, 100) = 13.51$, $p < .01$. The highest point in the outgoingness latitude of acceptance was larger in value amongst those in the no feedback condition ($M = 5.13$, $SE = .10$) than amongst those in the challenging-only, challenging/verifying, and verifying/challenging conditions ($M = 5.50$, $SE = .11$; $M = 5.56$, $SE = .12$; $M = 5.54$, $SE = .11$, respectively), $F(3, 100) = 3.71$, $p < .05$. Self-

knowledge confidence was higher amongst those in the verifying/challenging condition ($M = 4.28$, $SE = .21$) than amongst those in the challenging-only, challenging/verifying, and no feedback conditions ($M = 3.80$, $SE = .21$; $M = 3.40$, $SE = .21$, $M = 3.86$, $SE = .20$, respectively), $F(3, 105) = 2.87$, $p < .05$.

Age, outgoingness, and outgoingness latitude of acceptance differed by self-belief certainty. Participants who were certain that they were outgoing were younger and reported they were more outgoing than those who were uncertain that they were outgoing [age $M = 19.1$ ($SE = .4$) vs. $M = 20.3$ ($SE = .4$), $F(1, 105) = 4.57$, $p < .05$; outgoingness; $M = 4.84$ ($SE = .09$) vs. $M = 4.31$ ($SE = .09$), $F(1, 105) = 17.68$, $p < .001$]. Compared to participants who were uncertain that they were outgoing, participants who were certain that they were outgoing reported that both their lowest and highest points in the outgoingness latitude of acceptance were larger in value [outgoingness latitude of acceptance low point $M = 3.42$ ($SE = .08$) vs. $M = 2.94$ ($SE = .08$), $F(1, 100) = 16.82$, $p < .01$; outgoingness latitude of acceptance high point $M = 5.61$ ($SE = .08$) vs. $M = 5.25$ ($SE = .08$), $F(1, 100) = 10.14$, $p < .01$]. Therefore, participants' initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence were controlled for in the analyses.

Analytic strategy. Correlations between the self-belief change indicators are presented in Tables 6-8. Amongst the entire experimental sample the self-belief change indicators correlated with each other except for deliberation about outgoingness. However, amongst those who were initially certain that they were outgoing, all of the self-belief change indicators strongly correlated with each other. This shows that the self-belief change indicators provided converging evidence of change, and that deliberation

Table 6

Correlations Between the Self-Belief Change Indicators Amongst the Experimental

Sample

	Outgoingness	Outgoingness latitude of acceptance low point	Outgoingness latitude of acceptance high point	Outgoingness certainty	Deliberation about outgoingness
Outgoingness	1.00	.68***	.62***	.46***	-.13
Outgoingness latitude of acceptance low point		1.00	.45***	.33***	-.13
Outgoingness latitude of acceptance high point			1.00	.41***	-.19*
Outgoingness certainty				1.00	-.11
Deliberation about outgoingness					1.00
df	96	96	96	96	96

Note. Correlations are adjusted for initial age, outgoingness, outgoingness latitude of

acceptance, and self-knowledge confidence.

*p < .10, **p < .05, ***p < .01

Table 7

Correlations Between the Self-Belief Change Indicators Amongst Those Who Were

Initially Certain That They Were Outgoing

	Outgoingness	Outgoingness latitude of acceptance low point	Outgoingness latitude of acceptance high point	Outgoingness certainty	Deliberation about outgoingness
Outgoingness	1.00	.65***	.60***	.48***	-.35**
Outgoingness latitude of acceptance low point		1.00	.47***	.38**	-.32**
Outgoingness latitude of acceptance high point			1.00	.28*	-.39**
Outgoingness certainty				1.00	-.30**
Deliberation about outgoingness					1.00
df	42	42	42	42	42

Note. Correlations are adjusted for initial age, outgoingness, outgoingness latitude of

acceptance, and self-knowledge confidence.

*p < .10, **p < .05, ***p < .01

Table 8

Correlations Between the Self-Belief Change Indicators Amongst Those Who Were

Initially Uncertain That They Were Outgoing

	Outgoingness	Outgoingness latitude of acceptance low point	Outgoingness latitude of acceptance high point	Outgoingness certainty	Deliberation about outgoingness
Outgoingness	1.00	.72***	.55***	.43***	.11
Outgoingness latitude of acceptance low point		1.00	.42***	.33**	.02
Outgoingness latitude of acceptance high point			1.00	.46***	-.02
Outgoingness certainty				1.00	.06
Deliberation about outgoingness					1.00
df	47	47	47	47	47

Note. Correlations are adjusted for initial age, outgoingness, outgoingness latitude of

acceptance, and self-knowledge confidence.

*p < .10, **p < .05, ***p < .01

about a self-belief particularly marked change of a self-belief held with certainty. Nonetheless, each self-belief change indicator was analyzed separately to provide a full picture of change.

I conducted a series of two-way (self-belief feedback: challenging-only, challenging/verifying, no feedback, verifying/challenging) X (initial outgoingness certainty: uncertain, certain) ANCOVA's to test the study hypotheses. Moreover, because I expected that there would be specific linear trends across the feedback conditions and that these trends would differ across levels of initial outgoingness certainty, I specified two sets of planned orthogonal contrast tests. The first set comprised the main effect contrast tests. The second set comprised the interaction contrast tests. The uncertain and certain groups were assigned contrast weights of -1 and 1, respectively, and each of these weights was multiplied by each of the main effect contrast weights. This resulted in main effect contrast weights that were opposite in sign across levels of initial outgoingness certainty (see Table 9 for the main effect contrast weights and Table 10 for the interaction effect contrast weights). Means are presented in Tables 11-13. The general pattern of means supported the study hypotheses, and there were several significant contrast tests.

The effects of self-belief feedback. I expected effects of self-belief feedback such that those in the verifying/challenging condition would report being more confident in their self-knowledge, more open to the outgoing feedback, and less motivated to verify their outgoingness. I also expected that they would report more self-belief change than those in the other three conditions. I contrasted the verifying/challenging group against all other groups.

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Table 9

Planned Main Effect Contrast Weights for Study 2 Analyses

	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
		Self-Knowledge confidence		
Contrast 1	-1	-1	-1	3
Contrast 2	-1	2	-1	0
Contrast 3	-1	0	1	0
		Motivation to verify outgoingness and openness to the outgoing feedback		
Contrast 1	-1	-1	-1	3
Contrast 2	-1	-1	2	0
		Outgoingness, outgoingness latitude of acceptance, outgoingness certainty, and deliberation about outgoingness		
Contrast 1	-1	-1	-1	3

Compared to the other groups, those in the verifying/challenging condition reported significantly more self-knowledge confidence, $F(1, 98) = 4.35$, $p < .05$, $\eta^2 = .04$, more openness to the outgoing feedback, $F(1, 98) = 10.06$, $p < .01$, $\eta^2 = .09$, and less outgoingness, $F(1, 98) = 3.49$, $p < .10$, $\eta^2 = .03$, and they deliberated significantly more about their outgoingness, $F(1, 96) = 11.98$, $p < .01$, $\eta^2 = .11$. However, their motivation to verify their outgoingness, outgoingness latitudes of acceptance, and outgoingness certainty did not differ from those in the other groups, all p's $> .10$.

Table 10

Planned Interaction Effect Contrast Weights for Study 2 Analyses

	Uncertain				Certain			
	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
Self-Knowledge confidence								
Contrast 1	1	1	1	-3	-1	-1	-1	3
Contrast 2	1	-2	1	0	-1	2	-1	0
Contrast 3	1	0	-1	0	-1	0	1	0
Motivation to verify outgoingness and openness to the outgoing feedback								
Contrast 1	1	1	1	-3	-1	-1	-1	3
Contrast 2	1	1	-2	0	-1	-1	2	0
Outgoingness, outgoingness latitude of acceptance, outgoingness certainty, and deliberation about outgoingness								
Contrast 1	1	1	1	-3	-1	-1	-1	3

I also expected that those in the challenging/verifying condition would report being more confident in their self-knowledge than those in the challenging-only and no feedback conditions, and that those in the challenging-only condition would report being less confident in their self-knowledge than those in three conditions. I contrasted the challenging/verifying condition against the challenging-only and no feedback conditions, and the challenging-only condition against the no feedback condition. Those in the challenging/verifying condition reported more self-knowledge confidence than those in the challenging-only and no feedback conditions, $F(1, 98) = 3.10$, $p < .10$, $\eta^2 = .03$. Self-knowledge confidence did not differ between those in the challenging-only and no feedback conditions, $p > .10$.

Finally, I expected that those in the challenging/verifying and challenging-only conditions would report being less open to the outgoing feedback and more motivated to verify their outgoingness than those in the no feedback group. Contrary to the hypothesis regarding openness to the outgoing feedback, those in the challenging-only and challenging/verifying conditions reported being more open to the outgoing feedback than those in the no feedback condition, $F(1, 98) = 14.29$, $p < .001$, $\eta^2 = .13$. Moreover, these three groups did not differ in their motivation to verify their outgoingness, $p > .10$ (Table 11).

The effects of initial outgoingness certainty. I expected effects of initial self-belief certainty such that participants who were initially uncertain that they were outgoing would report being more confident in their self-knowledge, more open to the outgoing feedback, and less motivated to verify their outgoingness than those who were initially certain that they were outgoing. I also expected that they would report more

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Table 11

Study 2 Dependent Variables by Self-Belief Feedback Condition

	Challenging-only	Challenging/ verifying	No Feedback	Verifying/ Challenging
	Self-Knowledge confidence			
M	4.39	4.58	4.24	4.69
SE	.12	.12	.12	.12
	Motivation to verify outgoingness			
M	4.52	4.68	5.31	4.57
SE	.41	.42	.41	.41
	Openness to the outgoing feedback			
M	3.49	3.81	1.79	4.37
SE	.37	.38	.37	.37
	Outgoingness			
M	4.01	3.73	4.13	3.61
SE	.16	.17	.17	.16
	Outgoingness certainty			
M	4.48	4.36	4.49	4.11
SE	.18	.19	.18	.18
n	26	25	31	26

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.**n*'s = 25, 25, 30, 25, ***n*'s = 25, 24, 31, 26

Table 11 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition

	Challenging-only	Challenging/ verifying	No Feedback	Verifying/ Challenging
	Outgoingness latitude of acceptance low point*			
M	3.03	2.83	2.87	2.71
SE	.18	.18	.18	.18
	Outgoingness latitude of acceptance high point*			
M	5.14	4.88	5.16	4.90
SE	.15	.15	.16	.15
	Deliberation about outgoingness**			
M	5.62	4.91	4.14	7.42
SE	.64	.67	.64	.63
n	26	25	31	26

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.**n*'s = 25, 25, 30, 25, ***n*'s = 25, 24, 31, 26

self-belief change. Compared to those who were initially certain that they were outgoing, those who were initially uncertain that they were outgoing reported more openness to the outgoing feedback, $F(1, 98) = 3.36$, $p < .10$, $\eta^2 = .03$, less motivation to verify their outgoingness, $F(1, 98) = 3.72$, $p < .10$, $\eta^2 = .04$, and less outgoingness, $F(1, 98) = 4.37$, $p < .05$, $\eta^2 = .04$, and they were significantly less certain about their outgoingness, $F(1, 99) = 5.05$, $p < .05$, $\eta^2 = .05$. In addition, they reported that the highest point in their latitude

of acceptance was significantly smaller in value, $F(1, 95) = 5.68$, $p < .05$, $\eta^2 = .06$. Thus, contrary to the hypothesis, they reported narrower latitudes of acceptance. However, this also indicated that they were more willing to adjust their latitudes of acceptance in the direction of the self-belief feedback. Neither self-knowledge confidence nor deliberation over outgoingness differed between levels of initial outgoingness certainty, both p's $> .10$ (Table 12).

Interaction effects between self-belief feedback and initial outgoingness certainty. I expected an interaction between self-belief feedback condition and initial outgoingness certainty, such that the differences in responses between the self-belief feedback conditions would be larger amongst those who were initially certain they that they were outgoing than amongst those who were initially uncertain that they were outgoing. Most importantly, I expected that the differences in responses between participants in the verifying/challenging and other three conditions would be larger amongst those who were initially certain that they were outgoing than amongst those who were initially uncertain that they were outgoing.

I tested whether the self-belief feedback contrast test results were different across levels of initial outgoingness certainty. Initial outgoingness certainty significantly moderated the difference in the lowest point of the outgoingness latitude of acceptance between the verifying/challenging condition and the other three conditions, $F(1, 92) = 5.54$, $p < .05$, $\eta^2 = .06$. This effect was not due to a larger difference amongst those who were initially certain that they were outgoing than amongst those who were initially certain that they were outgoing. Rather, it was due to a reversal of means. Amongst those

Table 12

Study 2 Dependent Variables by Initial Outgoingness Certainty

	Uncertain	Certain
Self-Knowledge confidence		
M	4.54	4.41
SE	.08	.09
Motivation to verify outgoingness		
M	4.35	5.20
SE	.29	.30
Openness to the outgoing feedback		
M	3.73	3.00
SE	.26	.27
Outgoingness		
M	3.69	4.05
SE	.12	.12
Outgoingness certainty		
M	4.14	4.58
SE	.13	.13
n	55	53

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of

acceptance, and self-knowledge confidence.**n*'s = 55, 50, ***n*'s = 54, 52

Table 12 (Continued)

Study 2 Dependent Variables by Initial Outgoingness Certainty

	Uncertain	Certain
Outgoingness latitude of acceptance low point*		
M	2.78	2.94
SE	.12	.13
Outgoingness latitude of acceptance high point*		
M	4.83	5.22
SE	.11	.11
Deliberation about outgoingness**		
M	5.81	5.23
SE	.45	.47
N	55	53

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.*n's = 55, 50, **n's = 54, 52

who were initially certain that they were outgoing, those in the verifying/challenging condition reported a smaller value for the lowest point in their latitudes of acceptance than those in the other three conditions. Amongst those who were initially uncertain that they were outgoing, those in the verifying/challenging condition reported a larger value for the lowest point in their latitudes of acceptance. Thus, consistent with expectations, amongst those who were initially certain that they were outgoing, those in the verifying/challenging condition reported wider latitudes of acceptance such that the

lowest point of their latitudes of acceptance approximated the point on the scale that was the basis for the self-belief feedback. Contrary to expectations, amongst those who were initially uncertain that they were outgoing, those in the verifying/challenging condition reported narrower latitudes of acceptance such that the lowest point of their latitudes of acceptance was farther from the point on the scale that was the basis for the self-belief feedback. Initial outgoingness certainty did not moderate any other effects of self-belief feedback, all p's > .10 (Table 13).

Mediation of the self-belief feedback effects. I conducted a series of regression analyses in order to determine whether the impact of self-belief feedback on outgoingness and deliberation about outgoingness was mediated by its impact on self-knowledge confidence and openness to the outgoing feedback, controlling for initial age, outgoingness, outgoingness latitude of acceptance, self-knowledge confidence, and outgoingness certainty. To match the self-belief feedback contrast effect observed via the ANCOVAs, I first coded the self-belief feedback conditions such that the verifying/challenging condition was assigned a value of 1, and the other three conditions were assigned a value of 0.

Self-belief feedback condition was significantly related to self-knowledge confidence, $\beta = .11$, $p < .05$, openness to the outgoing feedback, $\beta = .28$, $p < .01$, outgoingness, $\beta = -.16$, $p < .10$, and deliberation about outgoingness, $\beta = .33$, $p < .01$. Controlling for each other, only openness to the outgoing feedback was related to outgoingness, $\beta = -.44$, $p < .001$.

Table 13

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial Outgoingness Certainty

	Uncertain				Certain			
	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
				Self-Knowledge confidence				
M	4.47	4.77	4.18	4.76	4.32	4.41	4.29	4.63
SE	.17	.17	.18	.17	.17	.17	.16	.17
				Motivation to verify outgoingness				
M	3.84	4.47	4.89	4.19	5.21	4.92	5.70	4.95
SE	.58	.60	.61	.58	.60	.60	.55	.59
n	13	12	17	13	13	13	14	13

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.*n*'s = 13, 12, 17, 13, 12, 13, 13, 12, *n*'s = 13, 11, 17, 13, 12, 13, 14, 13

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Table 13 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial Outgoingness Certainty

	Uncertain				Certain			
	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
	Openness to the outgoing feedback							
M	3.82	4.54	2.16	4.42	3.14	3.10	1.44	4.32
SE	.52	.54	.55	.52	.53	.54	.50	.53
	Outgoingness							
M	3.74	3.62	3.81	3.59	4.29	3.88	4.43	3.64
SE	.23	.24	.24	.23	.24	.24	.22	.23
n	13	12	17	13	13	13	14	13

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.*n*'s = 13, 12, 17, 13, 12, 13, 13, 12, **n*'s = 13, 11, 17, 13, 12, 13, 14, 13

Table 13 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial Outgoingness Certainty

	Uncertain				Certain			
	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
				Outgoingness certainty				
M	4.53	4.27	4.00	3.82	4.45	4.46	4.98	4.44
SE	.25	.26	.26	.25	.26	.26	.25	.25
				Outgoingness latitude of acceptance low point*				
M	2.75	2.58	2.82	2.96	3.35	3.08	2.88	2.43
SE	.23	.24	.25	.23	.25	.24	.23	.25
n	13	12	17	13	13	13	14	13

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.*n's = 13, 12, 17, 13, 12, 13, 13, 12, *n's = 13, 11, 17, 13, 12, 13, 14, 13

Table 13 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial Outgoingness Certainty

	Uncertain				Certain			
	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging	Challenging-only	Challenging/ verifying	No feedback	Verifying/ challenging
	Outgoingness latitude of acceptance high point*							
M	4.83	4.71	4.96	4.82	5.49	5.07	5.34	4.97
SE	.21	.22	.22	.21	.23	.22	.21	.22
	Deliberation about outgoingness**							
M	6.22	4.78	4.90	7.25	4.92	4.90	3.47	7.52
SE	.88	.97	.94	.89	.96	.92	.86	.90
n	13	12	17	13	13	13	14	13

Note: Means are adjusted for initial age, outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.*n's = 13, 12, 17, 13, 12, 13, 13, 12, *n's = 13, 11, 17, 13, 12, 13, 14, 13

Moreover, the relation between self-belief feedback condition and outgoingness was reduced to non-significance, β = -.03, $p > .10$ (Sobel $z = 2.57$, $p < .05$), indicating that openness to outgoing feedback mediated the effect of self-belief feedback on outgoingness (Figure 4). Neither self-knowledge confidence nor openness to the outgoing feedback was related to deliberation about outgoingness, which indicated that neither mediated the impact of self-belief feedback on deliberation about outgoingness.

Figure 4. *Mediation of the Self-Belief Feedback Condition Effect on Outgoingness by Openness to the Outgoing Feedback*

| Self-Knowledge confidence |
| Openness to the outgoing feedback |
| Self-Belief feedback: verifying/challenging (1) vs. other feedback (0) |
| Outgoingness |

.11**

-.04

.28***

-.44****

-.03
(-.16*)
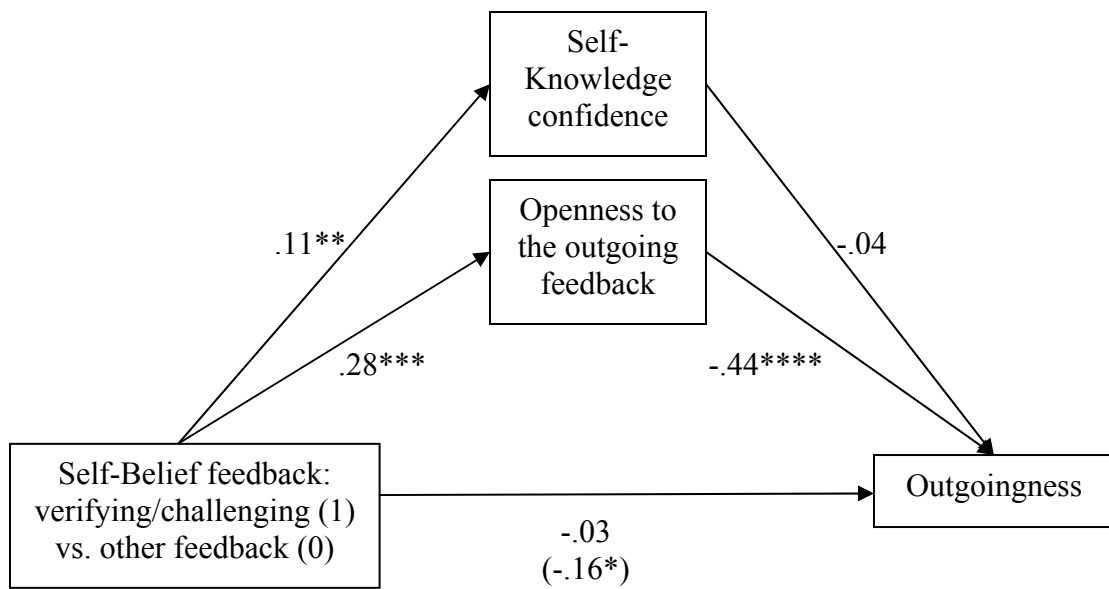
Note. *$p < .10$, **$p < .05$, ***$p < .01$, ****$p < .001$

Mediation of the initial outgoingness certainty effects. I also tested whether the impact of initial outgoingness certainty on outgoingness, outgoingness latitude of acceptance, and outgoingness certainty was mediated by its impact on motivation to
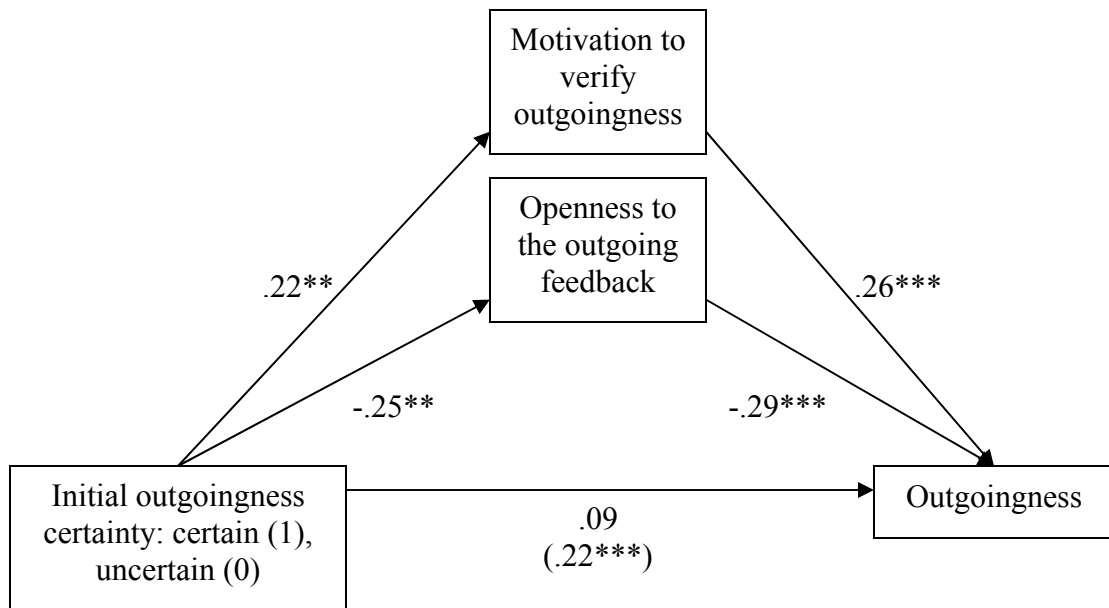
verify outgoingness and openness to the outgoing feedback. I controlled for initial age,

outgoingness latitude of acceptance, self-knowledge confidence, and self-belief feedback

condition. Initial outgoingness certainty was coded such that initial outgoingness

certainty was assigned a value of 1 and initial outgoingness uncertainty was assigned a

value of 0.

Initial outgoingness certainty was significantly related to motivation to verify

outgoingness, $\beta = .22$, $p < .05$, openness to the outgoing feedback, $\beta = -.25$, $p < .05$,

outgoingness, $\beta = .22$, $p < .01$, the high point of the outgoingness latitude of acceptance,

$\beta = .25$, $p < .01$, and outgoingness certainty, $\beta = .24$, $p < .05$. Controlling for each other,

both motivation to verify outgoingness, $\beta = .26$, $p < .01$, and openness to the outgoing

feedback, $\beta = -.29$, $p < .01$, were related to outgoingness. Moreover, they both partially

mediated the impact of initial outgoingness certainty on outgoingness; this relation was

reduced to non-significance, $\beta = .09$, $p > .10$ (motivation to verify outgoingness Sobel $z =$

1.66, $p < .10$; openness to the outgoing feedback Sobel $z = 1.86$, $p < .10$) (Figure 5). Only

openness to the outgoing feedback was related to the high point of the outgoingness

latitude of acceptance, $\beta = -.32$, $p < .01$, and the impact of initial outgoingness certainty

was reduced to marginal significance, $\beta = .17$, $p < .10$ (Sobel $z = 1.80$, $p < .10$) indicating

that it partially mediated the effect of initial outgoingness certainty on the high end of the

outgoingness latitude of acceptance (Figure 6). Neither motivation to verify outgoingness

nor openness to the outgoing feedback was related to outgoingness certainty.

Follow-Up Analyses of the Study Hypotheses

Although those in the verifying/challenging condition reported being the most

confident in their self-knowledge, most open to the outgoing feedback, least outgoing,

Figure 5. *Mediation of the Initial Outgoingness Certainty Effect on Outgoingness by*

Motivation to Verify Outgoingness and Openness to the Outgoing Feedback

*Note. *p < .10, **p < .05, ***p < .01, ****p < .001*

Figure 6. *Mediation of the Initial Outgoingness Certainty Effect on the High Point of the*

Outgoingness Latitude of Acceptance by Openness to the Outgoing Feedback
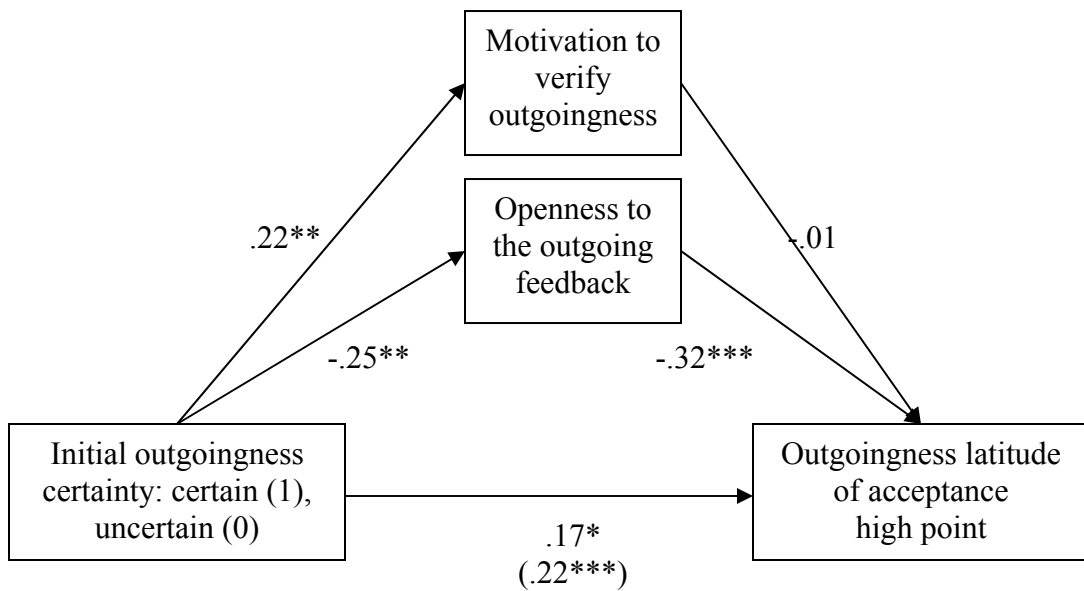
*Note. *p < .10, **p < .05, ***p < .01, ****p < .001*

and deliberated the longest about their outgoingness, the pattern of means suggests that contrast tests between them and those in the other three conditions may have been significant only because they differed from those in the no feedback condition. Accordingly, I conducted follow-up analyses comparing just those in the verifying/challenging condition to those in the challenging-only and challenging/verifying conditions. In doing so, I excluded those in the no feedback group for two reasons. First, twenty participants were strategically placed in the no feedback condition (uncertain $n = 14$, certain $n = 6$) because the challenging feedback did not fall within their latitudes of rejection.[10]

Compared to those who were randomly assigned, these participants tended to be older [age $M = 21.1$, SE .62 vs. $M = 19.4$, $SE = .30$, $F(1, 111) = 6.11$, $p < .05$], to be less outgoing [$M = 4.10$, $SE = .15$ vs. $M = 4.66$, $SE = .07$, $F(1, 111) = 11.69$, $p < .01$], to have low points of their latitudes of acceptance that were smaller in value [$M = 2.10$, $SE = .13$ vs. $M = 3.39$, $SE = .06$, $F(1, 106) = 87.19$, $p < .001$], to have high points of their latitude of acceptance that were smaller in value [$M = 4.86$, $SE = .12$ vs. $M = 5.54$, $SE = .06$, $F(1, 106) = 24.48$, $p < .001$], and to be less certain that they were outgoing [$M = 4.24$, $SE = .21$ vs. $M = 4.76$, $SE = .10$, $F(1, 111) = 5.06$, $p < .05$]. Second, these participants were asked to hypothetically respond to being told that they were *not* outgoing, which represented a stronger challenge than being told that they were *slightly* outgoing and could have altered their post-feedback responses across the board.

Initial differences in the experimental sample for the follow-up analyses. Amongst those in the remaining three conditions, initial self-knowledge confidence differed by condition given that it was higher for those in the verifying/challenging condition ($M =$

4.28, $SE = .22$) than those in the challenging-only and challenging/verifying conditions ($M = 3.75$, $SE = .22$; $M = 3.40$, $SE = .21$, respectively), $F(2, 75) = 4.22$, $p < .05$. Initial outgoingness differed by certainty, such that those who were certain that they were outgoing were more outgoing ($M = 4.93$, $SE = .11$) than those who were uncertain that they were outgoing ($M = 4.40$, $SE = .12$), $F(1, 75) = 10.42$, $p < .01$. The initial low and high points of the outgoingness latitude of acceptance also differed by certainty such that they were larger in value amongst those who were certain they were outgoing than amongst those who were uncertain they were outgoing [low point of the outgoingness latitude of acceptance, $M = 3.56$, $SE = .09$ vs. $M = 3.22$, $SE = .10$, $F(1, 70) = 6.82$, $p < .05$; high point of the outgoingness latitude of acceptance, $M = 5.67$, $SE = .08$ vs. $M = 5.40$, $SE = .08$, $F(1, 70) = 5.42$, $p < .05$]. Initial outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence were controlled for in these analyses.

I conducted a series of two-way (self-belief feedback: challenging-only, challenging/verifying, verifying/challenging) X (initial outgoingness certainty: uncertain, certain) ANCOVA's in these follow-up analyses. I specified two sets of planned orthogonal contrast tests, including a set that comprised the main effect contrast tests and a set that comprised the interaction contrast tests. Means are presented in Tables 14-16.

The effects of the self-belief feedback and initial outgoingness certainty in the follow-up sample. I contrasted the verifying/challenging group against the challenging/verifying and challenging-only groups. Those in the verifying/challenging condition deliberated significantly more about their outgoingness than those in the challenging/verifying and challenging-only conditions, $F(1, 66) = 6.42$, $p < .05$, $\eta^2 = .09$.

There were no other differences between those in the verifying/challenging and two other groups, all other p's > .10 (Table 14).

Those who were initially uncertain that they were outgoing reported being less motivated to verify their outgoingness, $F(1, 68) = 4.44$, $p < .05$, $\eta^2 = .06$, reported being less outgoing, $F(1, 68) = 3.77$, $p < .10$, $\eta^2 = .05$, and reported a smaller value for the high point of their outgoingness latitudes of acceptance, $F(1, 66) = 5.75$, $p < .05$, $\eta^2 = .08$, than those who were initially certain that they were outgoing. There were no other differences between those who were initially certain that they were outgoing and those who were initially uncertain that they were outgoing, all other p's > .10 (Table 15).

Thus, when eliminating participants in the no feedback group from the analyses, the effects of self-belief feedback and initial outgoingness certainty on self-belief change remained. However, the effects of self-belief feedback on self-knowledge confidence and openness to the outgoing feedback, and the effects of initial outgoingness certainty on openness to the outgoing feedback were eliminated.

Interaction effects between self-belief feedback and initial outgoingness certainty. I tested whether the self-belief feedback contrast test results differed across levels of self-belief certainty. Initial outgoingness certainty moderated the difference in the low point of the outgoingness latitude of acceptance between the verifying/challenging condition and the other two conditions, $F(1, 64) = 8.57$, $p < .01$, $\eta^2 = .12$. Again, this was due to a reversal of means rather than larger differences amongst those who were initially certain that they were outgoing than those who were initially uncertain that they were outgoing. Consistent with expectations, amongst those who were initially certain that they were outgoing, those in the verifying/challenging condition reported smaller values

Table 14

Study 2 Dependent Variables by Self-Belief Feedback Condition, Without the No

Feedback Condition

	Challenging-only	Challenging/verifying	Verifying/challenging
	Self-Knowledge confidence		
M	4.35	4.54	4.66
SE	.13	.13	.13
	Motivation to verify outgoingness		
M	4.59	4.87	4.72
SE	.39	.40	.39
	Openness to the outgoing feedback		
M	3.43	3.68	4.23
SE	.38	.39	.38
	Outgoingness		
M	4.13	3.85	3.74
SE	.17	.17	.17
	Outgoingness certainty		
M	4.50	4.42	4.18
SE	.18	.18	.18
n	25	25	26

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence.*n's = 24, 25, 25, **n's = 24, 24, 26

Table 14 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition, Without the No

Feedback Condition

	Challenging-only	Challenging/Verifying	Verifying/Challenging
*Outgoingness latitude of acceptance low point**			
M	3.15	2.92	2.82
SE	.17	.17	.17
*Outgoingness latitude of acceptance high point**			
M	5.21	4.95	4.96
SE	.17	.16	.17
*Deliberation about outgoingness***			
M	5.54	4.82	7.44
SE	.72	.73	.71
n	25	25	26

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence.**n*'s = 24, 25, 25, ***n*'s = 24, 24, 26

for the low points in their latitudes of acceptance, or wider latitudes of acceptance, than

those in the other two conditions. Contrary to expectations, amongst those who were

initially uncertain that they were outgoing, those in the verifying/challenging condition

reported higher values for the low points in their latitudes of acceptance, or narrower

latitudes of acceptance, than those in the other two conditions. Initial outgoingness

certainty did not moderate any other effects of self-belief feedback, all other *p*'s > .10.

Table 15

Study 2 Dependent Variables by Initial Outgoingness Certainty, Without the No

Feedback Condition

	Uncertain	Certain
	Self-Knowledge confidence	
M	4.61	4.42
SE	.11	.11
	Motivation to verify outgoingness	
M	4.22	5.23
SE	.33	.32
	Openness to the outgoing feedback	
M	4.16	3.40
SE	.33	.32
	Outgoingness	
M	3.70	4.11
SE	.14	.14
	Outgoingness certainty	
M	4.21	4.53
SE	.15	.15
N	37	39

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence. **n*'s = 37, 37, **n's = 36, 38

Table 15 (Continued)

Study 2 Dependent Variables by Initial Outgoingness Certainty, Without the No

Feedback Condition

	Uncertain	Certain
	Outgoingness latitude of acceptance low point*	
M	2.82	3.10
SE	.14	.14
	Outgoingness latitude of acceptance high point*	
M	4.80	5.29
SE	.14	.14
	Deliberation about outgoingness**	
M	6.05	5.82
SE	.61	.59
N	37	39

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence. *n's = 37, 37, **n's = 36, 38

Thus, the interaction effects were the same when eliminating participants from the no

feedback condition from analyses (Table 16).

I continued to explore for other differences between self-belief feedback

conditions within each level of initial outgoingness certainty. As in study 1, those who

were considered initially uncertain that they were outgoing may have actually been

moderately uncertain they were outgoing.[11] Moreover, just as those who were considered

Table 16

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial

Outgoingness Certainty, Without the No Feedback Condition

	Uncertain			Certain		
	Challenging-only	Challenging/ Verifying	Verifying/ challenging	Challenging-only	Challenging/ verifying	Verifying/ challenging
			Self-Knowledge confidence			
M	4.40	4.72	4.72	4.30	4.36	4.60
SE	.20	.19	.19	.19	.19	.19
			Motivation to verify outgoingness			
M	3.72	4.61	4.31	5.43	5.15	5.12
SE	.59	.58	.56	.56	.56	.56
			Openness to the outgoing feedback			
M	3.89	4.38	4.25	2.98	3.00	4.22
SE	.57	.56	.54	.55	.55	.55
			Outgoingness			
M	4.82	4.73	4.84	5.61	5.17	5.08
SE	.24	.24	.23	.24	.23	.24
n	12	12	13	13	13	13

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence. **n*'s = 12, 12, 13, 12, 13, 12, **n's = 12, 11, 13, 12, 13,

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Table 16 (Continued)

Study 2 Dependent Variables by Self-Belief Feedback Condition and Initial

Outgoingness Certainty, Without the No Feedback Condition

	Uncertain			Certain		
	Challenging-only	Challenging/ Verifying	Verifying/ Challenging	Challenging-only	Challenging/ Verifying	Verifying/ Challenging
Outgoingness certainty						
M	4.51	4.30	3.84	4.51	4.54	4.53
SE	.27	.26	.25	.26	.26	.25
Outgoingness latitude of acceptance low point*						
M	2.77	2.64	3.03	3.55	3.19	2.56
SE	.23	.23	.22	.23	.22	.23
Outgoingness latitude of acceptance high point*						
M	4.82	4.73	4.84	5.61	5.17	5.08
SE	.24	.24	.23	.24	.23	.24
Deliberation about outgoingness**						
M	6.28	4.64	7.24	4.79	4.91	7.69
SE	1.05	1.09	1.01	1.05	1.01	1.01
n	12	12	13	13	13	13

Note. Means are adjusted for initial outgoingness, outgoingness latitude of acceptance,

and self-knowledge confidence. **n*'s = 12, 12, 13, 12, 13, 12, **n's = 12, 11, 13, 12, 13,

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initially uncertain that they were outgoing in Study 1 responded to the feedback

manipulation in unexpected ways, those who were considered initially uncertain that they

were outgoing in Study 2 may have responded in ways that prohibited obtaining the
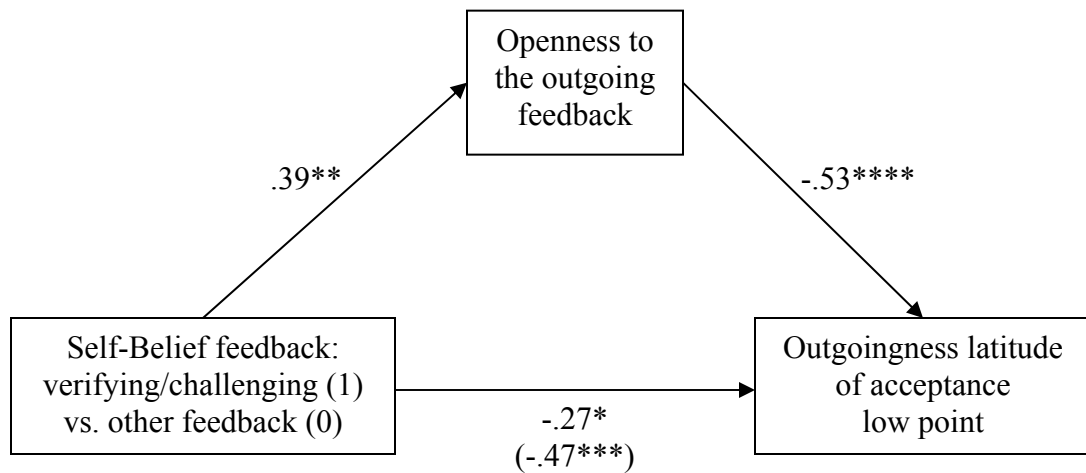
predicted interaction effects.

Amongst those who were initially certain that they were outgoing, those in the

verifying/challenging condition were more open to the outgoing feedback, $F(1, 32) =$

4.90, $p < .05$, $\eta^2 = .13$, and deliberated more about their outgoingness, $F(1, 31) = 4.83$, $p <$

.05, $\eta^2 = .14$, than those in the other two conditions. Amongst those who were initially

uncertain that they were outgoing, those in the verifying/challenging condition were

marginally less certain that they were outgoing than those in the other two conditions,

$F(1, 30) = 3.08$, $p < .10$, $\eta^2 = .09$. There were no other differences, all other p's $> .10$

(Table 16). Taken together, the results suggest that the effect of the self-belief feedback

was particularly strong amongst those who were initially certain that they were outgoing.

Mediation of the self-belief feedback effects amongst those who were initially

certain that they were outgoing. Amongst those who were initially certain that they were

outgoing, I explored whether openness to the outgoing feedback mediated the impact of

self-belief feedback condition on the low point of the outgoingness latitude of acceptance

and deliberation about outgoingness. I conducted regression analyses, and I controlled for

initial outgoingness, outgoingness latitude of acceptance, and self-knowledge confidence.

Self-belief feedback was coded such that the verifying/challenging group was assigned a

value of 1 and the other two groups were assigned a value of 0.

Self-belief feedback condition was related to openness to the outgoing feedback,

$\beta = .39$, $p < .05$, the low point of the outgoingness latitude of acceptance, $\beta = -.47$, $p < .01$, and deliberation about outgoingness, $\beta = .39$, $p < .05$. Openness to the outgoing feedback was related to the low point of the outgoingness latitude of acceptance, $\beta = -.53$, $p < .001$, and simultaneously reduced the impact of self-belief feedback condition on the low point of the outgoingness latitude of acceptance, $\beta = -.27$, $p < .10$, such that it partially mediated the impact of self-belief feedback on the low point of the outgoingness latitude of acceptance (Sobel $z = 1.94$, $p < .10$) (Figure 7). Openness to the outgoing feedback was not related to deliberation about outgoingness, and thus did not mediate the effect.

Figure 7. *Mediation of the Self-Belief Feedback Effect on Outgoingness Latitude of Acceptance Low Point by Openness to the Outgoing Feedback Amongst Those Who Were Initially Certain That They Were Outgoing, Without the No Feedback Condition*
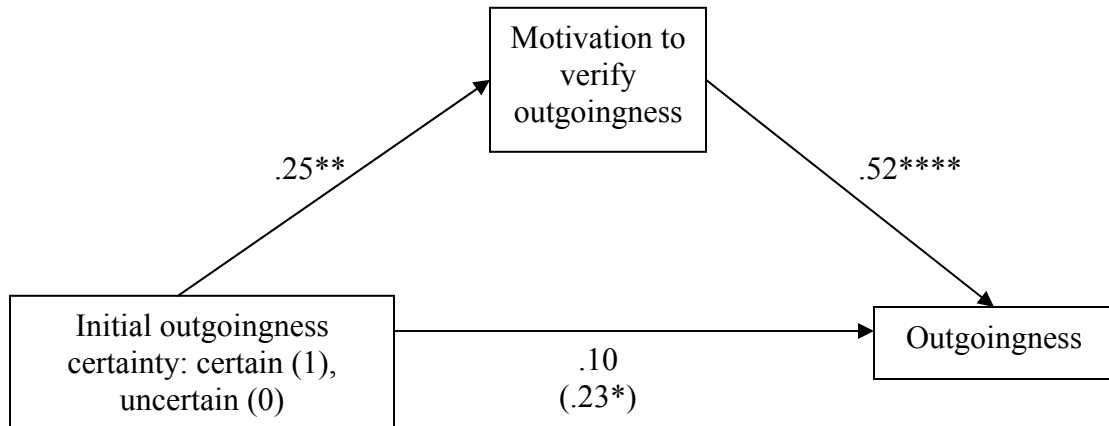

Note. $*p < .10$, $**p < .05$, $***p < .01$, $****p < .001$

Thus, when eliminating the no feedback group from analyses, some of the evidence for mediation of the self-belief feedback effects on self-belief change was eliminated. Only amongst those who were initially certain that they were outgoing was there evidence for mediation. Amongst participants who were initially certain that they were outgoing, those in the verifying/challenging condition were more open to the outgoing feedback than those in the challenging/verifying and challenging-only conditions. As a result, they were more likely to change their self-belief.

Mediation of the initial outgoingness certainty effects. I next explored whether motivation to verify outgoingness mediated the impact of initial outgoingness certainty on outgoingness and the high point of the outgoingness latitude of acceptance. I conducted regression analyses, and I controlled for initial outgoingness, latitude of acceptance, self-knowledge confidence, and self-belief feedback condition. Initial outgoingness certainty was related to motivation to verify outgoingness, $\beta = .25$, $p < .05$, to outgoingness, $\beta = .23$, $p < .10$, and to the high point of the outgoingness latitude of acceptance, $\beta = .29$, $p < .05$. Moreover, motivation to verify outgoingness was related to outgoingness, $\beta = .52$, $p < .001$, while simultaneously reducing the impact of initial outgoingness certainty, $\beta = .10$, $p > .10$ (Sobel $z = 1.93$, $p < .10$), indicating that it partially mediated the impact of initial outgoingness certainty on outgoingness (Figure 8). Motivation to verify outgoingness was marginally related to the high point of the outgoingness latitude of acceptance, $\beta = .22$, $p < .10$. Although it reduced the impact of initial outgoingness certainty, $\beta = .24$, $p < .10$, on the high point of the outgoingness latitude of acceptance, it did not mediate this effect (Sobel $z = 1.31$, $p > .10$). Thus, those

Figure 8. *Mediation of the Initial Outgoingness Certainty Effect on Outgoingness by*

Motivation to Verify Outgoingness, Without the No Feedback Condition

Note. *p < .10, **p < .05, ***p < .01, ****p < .001

who were initially uncertain of their self-belief were most likely to change that self-belief

because they were not motivated to verify it in response to a challenge.

Mediation of the initial outgoingness certainty effect on self-belief change by

openness to the outgoing feedback was eliminated when the no feedback group was

eliminated from the analyses. But as with the analyses that included the no feedback

condition, participants who were uncertain that they were outgoing were less motivated

to verify their self-belief, and as a result they were more likely to change.

Follow-up analyses regarding the differences between self-verification prior to as

opposed to after a self-belief challenge. I further explored the relations between the

verifying/challenging, challenging/verifying, and challenging-only groups in order to

determine whether verifying a certain self-belief prior to as opposed to after a self-belief

challenge was more conducive to self-belief change. If this were the case, those in the

verifying/challenging condition should have been more likely to change than those in the challenging/verifying condition. In addition, there should have been greater differences between those in the verifying/challenging and challenging-only conditions than between those in the challenging/verifying and challenging-only conditions. I compared the verifying/challenging and challenging/verifying groups to each other, and both to the challenging-only group.

Those in the verifying/challenging group deliberated more about their outgoingness than both those in the challenging/verifying group, $F(1, 66) = 6.32$, $p < .05$, $\eta^2 = .09$, and those in the challenging-only group, $F(1, 66) = 3.54$, $p < .10$, $\eta^2 = .05$. The latter two groups did not differ from each other, $p > .10$. There were no other significant differences between the feedback conditions, all other p's $> .10$.

Initial outgoingness certainty marginally moderated the effect of self-belief feedback condition on the low point of the outgoingness latitude of acceptance. Consistent with expectations, amongst those who were initially certain that they were outgoing, those who were in the verifying/challenging and challenging/verifying conditions reported a smaller value for the low points of their latitudes of acceptance, or wider latitudes of acceptance, compared to those in the challenging-only condition. Contrary to expectations, amongst those who were initially uncertain that they were outgoing, those in the verifying/challenging and challenging/verifying groups reported a larger value for the low points of their latitudes of acceptance, or narrower latitudes of acceptance, compared to those in the challenging-only condition, $F(1, 64) = 3.36$, $p < .10$, $\eta^2 = .05$. This was mostly due to a reversal in means across level of initial outgoingness certainty between those in the verifying/challenging and challenging-only conditions,

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$F(1, 64) = 7.35$, $p < .01$, $\eta^2 = .10$. But in addition, there was a reversal in means between those in the verifying/challenging and challenging/verifying conditions, $F(1, 64) = 5.37$, $p < .05$, $\eta^2 = .08$. Initial outgoingness certainty did not moderate the differences in the low points of the outgoingness latitudes of acceptance between those in the challenging/verifying and challenging-only conditions, $p > .10$. There were no other significant interaction effects, all other p's $> .10$.

For the same reasons as in the previous set of follow-up analyses, I further probed for order effects within each level of initial outgoingness certainty. Amongst those who were certain that they were outgoing, those in the verifying/challenging condition were more open to the outgoing feedback and deliberated more about their outgoingness compared to those in the challenging/verifying condition [$F(1, 32) = 3.92$, $p < .10$, $\eta^2 = .11$; $F(1, 31) = 3.56$, $p < .10$, $\eta^2 = .10$], and those in the challenging-only condition [$F(1, 32) = 3.58$, $p < .10$, $\eta^2 = .10$; $F(1, 31) = 3.84$, $p < .10$, $\eta^2 = .11$]. Those in the challenging/verifying condition did not differ from those in the challenging-only condition, both p's $> .10$. Those in the verifying/challenging and challenging/verifying conditions were less outgoing than those in the challenging-only condition, $F(1, 32) = 3.38$, $p < .10$, $\eta^2 = .10$. Although those in the verifying/challenging condition did not report being significantly less outgoing than those in the challenging/verifying condition, $p > .10$, they alone reported being less outgoing than those in the challenging-only condition, $F(1, 32) = 3.88$, $p < .10$, $\eta^2 = .11$.

Those in the verifying/challenging and challenging/verifying conditions also reported smaller values for the high points of their outgoingness latitudes of acceptance, or narrower latitudes of acceptance, compared to those in the challenging-only condition,

$F(1, 30) = 3.56$, $p < .10$, $\eta^2 = .11$. Those in the verifying/challenging condition did not report a smaller value for the high point of their outgoingness latitude of acceptance than those in the challenging/verifying condition, $p > .10$, but they alone reported a smaller value for the high point of their outgoingness latitude of acceptance than those in the challenging-only condition, $F(1, 30) = 3.74$, $p < .10$, $\eta^2 = .11$. There were no other significant effects, all other p's $> .10$.

Amongst those who were initially uncertain that they were outgoing, although those in the verifying/challenging condition were not significantly less certain than those in the challenging/verifying condition, $p > .10$, they alone were less certain than those in the challenging-only condition, $F(1, 30) = 3.32$, $p < .10$, $\eta^2 = .10$. There were no other significant effects, all other p's $> .10$.

Participants in the verifying/challenging condition were consistently more likely to change than those in the challenging/verifying condition. Participants in the challenging/verifying condition were consistently no more likely to change than those in the challenging-only condition. And the evidence suggests that these differences were particularly prevalent amongst those who were initially certain that they were outgoing. The general pattern of these results suggests that a self-belief challenge is more likely to result in self-belief change when a different self-belief that is held with certainty is verified prior to, as opposed to after, the challenge, particularly when the challenge is to a self-belief that is held with certainty.

Discussion

This study examined the assertion that self-beliefs are more likely to change when self-knowledge confidence isn't threatened in the process. More specifically, I tested

several hypotheses related to the following questions: Is a self-belief more likely to change when it is challenged after a different, certain self-belief is verified? Is this particularly true for self-beliefs that are held with certainty? Are self-beliefs that are held with uncertainty more likely to change than self-beliefs that are held with certainty?

Is a Self-Belief More Likely to Change When it is Challenged After a Different, Certain Self-Belief is Verified?

When a certain self-belief was verified before the self-belief was challenged, the self-belief that was challenged was more likely to change. Moreover, change was more likely when the certain self-belief was verified prior to, as opposed to after, the self-belief was challenged. Thus, the evidence supports the prediction that self-beliefs are more likely to change when they are challenged after a different self-belief that is held with certainty is verified. This effect is supported by previous studies that showed that people who were presented with personality evaluations that confirmed their self-views were subsequently less likely to verify those self-views (Swann, Wenzlaff, & Tafarodi, 1992), that people whose social identities were made salient were likely to change their individual self-beliefs that conflicted with the social identities (Onorato & Turner, 2004), that people were more likely to accept self-belief challenging feedback from close others with whom they frequently interact and who likely verify their self-beliefs (Lundgren, 2004), and that people were more likely to change a self-belief when their other self-beliefs were stable (Cassidy & Trew, 2001; Lemay & Ashmore 2004). However, this is the first study to compare the effects of challenging a self-belief after a different certain self-belief is verified to challenging a self-belief without verification of a different certain self-belief. Thus, it is the first study to systematically demonstrate this effect.

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Moreover, this effect is consistent with evidence presented by Swann and Predmore (1985) that people were less likely to change beliefs about themselves that were challenged when they could subsequently interact with relationship partners who could confirm their self-views. Of note, the effect is contrary to a self-affirmation interpretation of the results (cf. Sherman et al., 2000).

Are Uncertain Self-Beliefs More Likely to Change than Certain Self-Beliefs?

Uncertain self-beliefs were more likely to change than were certain self-beliefs. This is consistent with the observation that weak self-beliefs are more likely to change than are strong self-beliefs (Schlenker & Trudeau, 1990), but the first to demonstrate that uncertain self-beliefs are more likely to change than are certain self-beliefs.

Does Verifying a Certain Self-Belief Prior to a Challenge of a Self-Belief Facilitate Change Particularly When a Certain Self-Belief is Challenged?

Self-belief certainty moderated the effect of verifying a certain self-belief prior to when a self-belief was challenged on self-belief change. However, this did not reveal that the effect was stronger amongst those who were certain of their self-belief. Rather, it showed that the effect was opposite across levels of self-belief certainty. Thus, it appears that verifying a certain self-belief prior to a self-belief challenge facilitates change of certain self-beliefs, but prevents change of uncertain self-beliefs.

The Role of Self-Knowledge Confidence

There was little support for the critical theoretical assertion that self-beliefs are more likely to change when self-knowledge confidence isn't threatened in the process. Although self-knowledge confidence was less threatened when a self-belief was verified before a self-belief was challenged, it was not less threatened when uncertain self-beliefs

were challenged than when certain self-beliefs were challenged. Self-knowledge confidence didn't impact self-belief change. Yet, it was almost as if self-knowledge confidence did play a role in self-belief change. Self-inconsistent information was more readily accepted when a belief was verified before a belief was challenged. In addition, self-inconsistent information was more readily accepted and invoked less motivation to self-verify when uncertain self-beliefs were challenged than when certain self-beliefs were challenged. Moreover, openness to the self-inconsistent information and motivation to self-verify impacted self-belief change.

As in Study 1, results need to be considered in light of natural changes between pre- and post-feedback. Analyses not reported in the results section were conducted to examine natural changes between the two time points and to shed light on conclusions that could be reached given these natural changes. Self-knowledge confidence increased and outgoingness decreased for *all* participants between the two time points. Therefore, it could be argued that self-knowledge confidence naturally increased and outgoingness naturally decreased between the two time points, and that self-belief feedback did not have a strong impact on either self-knowledge confidence or self-belief change. Increases in self-knowledge confidence, however, may merely have been an artifact of assessing self-knowledge confidence at two different levels ("chronic" vs. "state"). "Chronic" self-knowledge confidence didn't moderate responses to the self-belief feedback, which suggests that "state" self-knowledge confidence is more critical to self-belief change. Differences in self-belief feedback resulted in different amounts of change in outgoingness. For instance, self-reported independence also changed, but outgoingness changed more relative to changes in independence amongst those who were expected to

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change their outgoingness the most – those in the verifying/challenging condition and those who were initially uncertain about their outgoingness.

The indicators of self-belief change correlated with each other, particularly amongst those who were initially certain that they were outgoing. Thus, they provided converging evidence of change. The most consistent indicators of change were the extent to which participants deliberated about their outgoingness and the extent to which their end points of their latitudes of acceptance changed. It may not be surprising that deliberation over outgoingness served as one of the most consistent indicators of change. Markus and Kunda (1986), for instance, observed that self-reports were less responsive to self-belief challenges than was deliberation over self-beliefs. They argued that self-belief deliberation may in fact be the best indicator of self-belief change.

The general pattern of means was in line with the study hypotheses, but there was a relative lack of statistically significant effects. This may have been because of a weak self-belief challenge. Additional analyses not reported in the results section suggest that more statistically significant effects would have been obtained had the self-belief challenge been stronger. Participants in the verifying/challenging, challenging/verifying, and challenging-only conditions were asked to respond to actual feedback that suggested they were *slightly* outgoing, whereas participants in the no feedback condition were asked to respond to hypothetical feedback that suggested they were *not* outgoing, and the latter feedback represented a stronger self-belief challenge. Participants in the verifying/challenging condition consistently differed most from participants in the no feedback condition following the self-belief feedback manipulation. Should participants in the verifying/challenging, challenging/verifying, and challenging-only conditions had

been asked to respond to actual feedback that suggested that they were not outgoing, participants in the verifying/challenging condition may have differed more from participants in the challenging/verifying and challenging-only conditions.

It is important to note that, on average, participants considered the outgoingness scale descriptor "not at all outgoing" to be within their latitude of rejection. As in Study 1, additional analyses revealed that variability between outgoingness and outgoingness feedback did not influence responses to the feedback. What mattered was whether the feedback fell within the latitudes of acceptance and rejection. Thus, participants in the no feedback condition didn't respond more negatively to the notion that they were not outgoing -- as opposed to slightly outgoing -- because this was more discrepant from their self-beliefs. Rather, they may have more readily perceived this potential self-belief as being self-inconsistent.

In addition, more statistically significant effects may have been obtained were there a larger difference in initial outgoingness certainty between those who were considered initially certain of their self-belief and those who were considered initially uncertain of their self-belief. As in Study 1, participants who were considered uncertain that they were outgoing may have actually been moderately uncertain that they were outgoing. This prevented examining within the entire sample the extent to which larger differences in initial outgoingness certainty would have resulted in stronger effects. However, amongst participants in the no feedback condition, some were randomly assigned to the condition and some were strategically placed in the condition. There were larger differences in initial outgoingness certainty amongst those who were randomly assigned to the condition than amongst those who were strategically placed in the

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condition. Accordingly, there were larger differences in responses to the feedback amongst those who were randomly assigned to the condition than amongst those who were strategically placed in the condition.

The study supported the assertions that a self-belief is more likely to change when it is challenged after a different, certain self-belief is verified, that this is particularly true for self-beliefs that are held with certainty, and that uncertain self-beliefs are more likely to change than certain self-beliefs. Unfortunately, self-knowledge confidence as assessed in this study was neither strongly influenced by the self-belief feedback manipulation nor by initial self-belief certainty. Thus, on one hand, there was lack of support for the critical assertion that self-beliefs are more likely to change when self-knowledge confidence isn't threatened in the process. On the other hand, the study showed that people's self-beliefs were more likely to change when they were open to self-inconsistent information and when they didn't want to verify their self-beliefs. Hence, people changed because they reacted to the information as if their self-knowledge confidence was not threatened in the process. Should the feedback manipulation have been stronger and should there have been larger differences in initial self-belief certainty, more support for the study hypotheses would have been obtained.

General Discussion

The perspective of self-belief change tested by these studies emphasizes people's concern over their self-knowledge confidence. In doing so, it more fully recognizes people's motivated preference for self-belief stability than is recognized by the self-presentation perspectives on self-belief change (Jones, 1993; Rhodewalt, 1986; Schlenker, 1986; Schlenker & Pontari, 2000; Tice, 1992; Tice, 1994). Moreover, it more

fully extends the tenets of self-verification theory (Swann, 1984) into the domain of self-belief change than previously extended by Swann and colleagues (Giesler & Swann, 1999; Swann, 1984; Swann, 1987; Swann & Brown, 1990). It specifies that a threat to self-knowledge confidence mediates the effect of self-belief challenges on self-belief change, and accordingly, that self-belief changes occur through two different paths. In one path, self-belief challenges threaten self-knowledge confidence, and self-belief changes occur only if there is a commitment to change. In the other path, self-belief challenges don't threaten self-knowledge confidence, and as a result, self-inconsistent information is readily accepted. This perspective affords the unique prediction that people are most likely to change their self-beliefs if their self-knowledge confidence isn't threatened in the process. This can occur if a self-belief is verified before a self-belief is challenged or if a self-belief that is held with uncertainty is challenged.

Two studies were conducted to test predictions derived from this perspective. Study 1 tested whether self-knowledge confidence is responsive to self-relevant information. Participants were presented with information that verified or challenged a belief of which they were either certain or uncertain. The study showed that people's self-knowledge confidence is bolstered when one of their certain self-beliefs is verified.

Study 2 tested the unique prediction that self-beliefs are more likely to change when self-knowledge confidence isn't threatened in the process. More specifically, it tested whether self-beliefs are more likely to change when they are challenged after a different self-belief that is held with certainty is verified, and whether this is particularly true when the self-belief that is challenged is also held with certainty. It also tested whether uncertain self-beliefs are more likely to change than certain self-beliefs.

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Participants were presented with information that challenged a self-belief that they held with either certainty or uncertainty. Some were also presented with information that verified one of their self-beliefs that they held with certainty, and this occurred either before or after their other self-belief was challenged. The study showed that people are most likely to change one of their self-beliefs when it is challenged after a different one of their self-beliefs that is held with certainty is verified. Moreover, it showed that verifying a self-belief held with certainty particularly benefits changing a self-belief held with certainty. It also showed that a self-belief that is held with uncertainty more readily changes than a self-belief held with certainty. In addition, it showed that lack of a motivation to verify a self-belief that is challenged and openness to self-inconsistent information mediates the effects of self-belief challenges on self-belief change.

The Benefits of Taking into Account People's Desire for Self-Knowledge Confidence

These studies advance understanding of self-belief change. Study 1 is the first to provide empirical support for the assertions made by Swann and colleagues (Swann, 1984; Swann, 1990; Swann, 1997), namely that self-knowledge confidence is responsive to self-relevant information. Study 2 is the first to provide evidence that people are most likely to change a self-belief when it is challenged after a different self-belief that is held with certainty is verified. This evidence supports the perspective that people are most likely to change a self-belief when their self-knowledge confidence isn't threatened in the process.

Previous studies demonstrated that people are more likely to change when self-relevant information is received repeatedly (Kinch, 1968), received in public situations (Eagly & Acksen, 1971; Schlenker et al., 1994; Tice, 1992), attributed to internal

dispositions (Rhodewalt & Agustsdottir, 1986), referenced against self-relevant information (Rhodewalt & Aguststdottir, 1986; Tice, 1992) and when their self-beliefs are weak (Schlenker & Trudeau, 1990). Moreover, previous studies demonstrated that people are more likely to change when they are prevented from verifying the self-belief that is challenged (Swann & Hill, 1982). According to the perspectives on self-belief change offered in the literature to date, these conditions foster self-belief change because they increase the likelihood that people perceive the self-relevant information as self-representative or allay their self-verification efforts.

The current studies, however, suggest that these conditions may foster self-belief change because they allay people's concern about whether they know themselves well. In particular, the current studies suggest that when self-discrepant information is received repeatedly, received in public situations, attributed to internal dispositions, and prevented from being rejected in favor of self-verification, self-belief change is likely to occur because there is a commitment to accepting the self-discrepant information as self-representative despite shaken self-knowledge confidence. If self-beliefs are weak, self-belief change is likely, given that challenges to the self-beliefs are not likely to threaten self-knowledge confidence. If self-discrepant information is referenced against self-knowledge, self-belief change is likely only when self-knowledge confidence isn't shaken.

The perspectives of self-belief change offered in the literature to can not explain why a self-belief is more likely to change when it is challenged after a certain self-belief is verified. Verifying a self-belief does not increase the perceived self-representativeness of self-discrepant information about a different self-belief or prevent verifying a self-

belief that is challenged. It is important to note that none of the conditions of self-belief

change specified in the literature to date were present in Study 2.

Limited Evidence for the Role of Self-Knowledge Confidence

Both studies provided evidence that self-knowledge confidence played a role in

the self-belief change process. Self-knowledge confidence was responsive to self-relevant

information. People were more likely to change a self-belief when it was challenged after

a different self-belief held with certainty was verified. Moreover, openness to feedback

and motivation to self-verify both mediated self-belief change. Yet, Study 2 did not

provide evidence that self-knowledge confidence mediates the effects of self-belief

challenges on self-belief change.

It must be recognized that other variables besides self-knowledge that are affected

by self-verification efforts and self-belief challenges may be crucial mediators in self-

belief change. What other variables may play a role in self-belief change? Swann and

colleagues emphasize that self-verification serves an interpersonal function. The more

people's beliefs are verified by others in their interpersonal environment, the more people

can predict and control their behaviors and the behaviors of those they interact with,

which allows them to establish smooth social interactions and to get along with others.

For people to successfully get along in their interpersonal environment, they need to

know that others see them as they see themselves (Giesler & Swann, 1999; McNulty &

Swann, 1991; Swann, 1984; Swann, 1990; Swann et al., 2003).

Self-belief change may be more of an interpersonal process than an individual

cognitive process. The interpersonal effects of self-verification and self-belief challenges

may mediate self-belief change. For example, interpersonal trust is thought to be affected

by self-verification efforts (Stets & Cast, 2007; Swann, 1984), and may play a critical role in self-belief change. When people's self-beliefs are challenged by other people, they may not trust the other people as a valid source of information about themselves, and consequently may reject change. If, however, people's self-beliefs are verified by other people, they may trust that those people understand them and can be complicit in establishing smooth social interactions. If trust in other people is solidified, then any self-belief challenges from those people may be perceived as less threatening and may result in self-belief change.

Self-esteem may also be a mediator of self-belief change. Given that positive self beliefs were verified and challenged in these studies, it is possible that self-esteem was affected and in turn regulated self-belief changes. This would be commensurate with a self-affirmation interpretation of the results (Steele, 1988). However, it should be noted that a mediator of self-affirmation effects has not been clearly identified (Sherman & Cohen, 2006). Moreover, people verify not only positive but also negative self-beliefs (Swann et al., 1989), ostensibly because verification of either type of self-belief can have beneficial effects for self-knowledge confidence and social interaction. The effects observed in this study should be obtained even if a negative self-belief is verified and/or challenged. To this end, self-esteem may not always affect the self-belief change process.

Methodological Approaches to Studying Self-Belief Change

The current studies included several methodological advantages over previous studies on self-belief change. Participants' self-beliefs were assessed prior to exposure to self-relevant information. This allowed precisely verifying and challenging their self-beliefs and assessing self-belief change. Moreover, all participants who were presented

with self-relevant information held the same self-beliefs, and all participants within the same condition were presented with the same information. This reduced any influence that variability in people's self-beliefs and therefore variability in messages about those self-beliefs could have on the results. Presenting participants with self-relevant information that was within their latitudes of acceptance and rejection was a conceptually based approach for verifying and challenging their beliefs, respectively. These methodological features enhanced the validity of the studies and thereby serve to bolster the claims made herein about self-belief change.

In addition, mediators of the effects of the self-relevant information on self-belief change were assessed, which provided information as to why participants changed their self-beliefs. Finally, multiple indicators of self-belief change were assessed. The indicators correlated with each other, and thus could provide converging evidence of self-belief change. Assessing multiple indicators increased the ability to observe evidence of self-belief change. Of the indicators, self-belief deliberation and the end points of the latitude of acceptance provided the most evidence of self-belief change. Thus, it would be advantageous to assess self-belief deliberation and latitudes of acceptance as outcomes in future studies on self-belief change.

Future Directions

The self-belief feedback manipulation employed in these studies worked as intended. Participants were responsive to whether feedback was within their latitudes of acceptance or rejection. Yet, latitudes of acceptance and rejection measures based on responses to single-item trait self-descriptiveness measures may be unreliable, which could undermine the extent to which manipulations based on them are reliable and

effective. In addition, feedback was comprised of single statements and graphs that were delivered quickly and impersonally via the computer. But clearly, people need more than a fraction of evidence that they are different from who they think they are if they are to react strongly to this notion, and to exhibit self-belief change. To ameliorate these problems in future studies, self-beliefs could be assessed using multiple items, and feedback could be presented in a more detailed manner by the experimenter.

Participants who were certain of their self-beliefs were successfully distinguished from participants who were less certain of their self-beliefs, and results showed that reactions to the feedback were dependent on self-belief certainty. However, it may have been more accurate to consider participants who were considered uncertain of their self-beliefs as being moderately uncertain of their self-beliefs. Results suggested that these participants responded to the self-relevant information as if they were moderately uncertain of their self-beliefs. Thus, a true test of the differences between those who are certain and those who are uncertain of their self-beliefs was not achieved in this study. Future studies should identify more people who can be considered uncertain of their self-beliefs in order to more accurately compare the responses of those who are certain and uncertain of their self-beliefs, and to further explore the effects of moderate uncertainty.

With a stronger manipulation and bigger distinctions in self-belief certainty, more effects may have been obtained in the current studies. In particular, more evidence for the role of self-knowledge confidence may have been obtained. And self-belief change may have been exhibited in self-reports of self-beliefs to a stronger degree.

Future studies should also examine the effects of verifying and challenging negative self-beliefs. Given that people are inclined to verify both their positive and

negative self-beliefs and that both positive and negative self-beliefs contribute to self-knowledge confidence, results should be similar to the results of the current studies. This would serve to further support the guiding perspective and further distinguish it from alternative explanations, such as a self-affirmation explanation. Along these lines, future studies should investigate alternative mediators of self-belief change, including self-esteem and interpersonal trust.

In future studies, the effects of commitment to change should be tested. Self-belief change may be particularly likely to occur if both a self-belief held with certainty is verified and if there is a commitment to change. Interestingly, self-beliefs may change in the short term if there is only a commitment to change. But to the extent that the benefits of verifying a self-belief are not present, that change could eventually be undermined. Along these lines, future studies should investigate the extent to which self-belief changes persist over time and situations. To date, it has been argued that change begets change, as long as the spur to change remains (Jones, 1993; Markus & Kunda, 1986). However, this ignores people's desires to verify their self-beliefs and to undo change (Swann & Hill, 1982). How change is initiated matters. Should change initially occur because it doesn't shake self-knowledge confidence, change may be more likely to persist over time and across situations. In part, this may be because this type of change is associated with cold cognitive processing, akin to self-perception and biased scanning processes, that is associated with systematic rationalization in attempts to integrate the new self-belief information with a coherent set of self-beliefs rather than hot cognitive processing, akin to dissonance processes, that is associated with defensive rationalization

in attempts to reconcile being bound to the new information and that makes enduring change tenuous at best.

Conclusion

Is self-knowledge confidence bolstered when a self-belief is verified and threatened when a self-belief is challenged? Are self-belief challenges that follow self-verification more likely to result in change? And are these effects particularly true when self-beliefs are held with certainty? Though the evidence could be stronger, the answer provided by the studies is "yes." Should people encounter unfettered challenges to their self-beliefs, they will resist change. But should they recognize that they know themselves well, challenges to their self-beliefs will be embraced, and their self-beliefs will change. Future studies that employ a stronger manipulation are needed to further investigate the role of self-knowledge confidence and uncertainty in self-belief change. Future studies are also needed to explore the effects of verifying and challenging negative self-beliefs, other mediators of self-belief change, and the extent to which changes endure over time.

People will change their self-beliefs despite their desire to remain the same. But people's self-beliefs are not constantly in flux, and are not merely a function of social environment change or hearing that they are different from whom they think they are. Rather, people are active gatekeepers of their self-beliefs, and only accept change when they can remain confident that they know who they are. Thus, to the extent that behavior change is dependent on self-belief change, it cannot be accomplished by direct attacks on self-beliefs, but can be accomplished by continually verifying other self-beliefs.

Footnotes

[1] Implicit in the biased scanning perspective on self-belief change is the assumption that all behaviors can be supported by existing self-knowledge. According to this perspective, self-belief changes are not changes per se, but rather shifts in the extent to which self-beliefs are currently in awareness at any point in time, or working self-concept changes (Markus & Kunda, 1986; Markus & Wurf, 1987; Tice, 1994). But until it can be established that people's self-concepts are comprised of all potential self-beliefs and until the contents of the working and chronic self-concepts can be empirically distinguished, it is safe to assume that bona fide changes occur.

[2] Eagly and Chaiken (1993) have argued that latitude of acceptance size is a marker of self-belief certainty, and accordingly, that latitude of acceptance size is negatively correlated with self-belief certainty. However, Schlenker and Trudeau (1990) observed no differences in the size of latitude of acceptance across levels of behavioral consistency, a marker of self-belief certainty. Thus, empirical evidence suggests that latitude of acceptance size is independent of self-belief certainty.

[3] I determined outgoingness certainty by a median split for two reasons. One, I wanted to assign equal numbers of participants who were initially certain that they were outgoing and initially uncertain that they were outgoing to each feedback condition. Two, I conducted a series of ANCOVA's with planned orthogonal contrasts to test the hypotheses.

[4] Participants were also asked to indicate the self-descriptiveness, latitudes of acceptance/rejection, and certainty of their independence, considerateness, creativeness, and courageousness.

[5]Per Campbell et al. (1996b), the item "Even if I wanted to, I don't think I would tell someone what I'm really like," should have read "Even if I wanted to, I don't think I *could* tell someone what I'm really like." Unfortunately, the original wording of the item was used in this study.

[6]Participants in the verifying condition were considered wrongly placed in this condition if the scale descriptor "quite" did not fall within their latitude of acceptance (n = 1), and participants in the challenging condition were considered wrongly placed in this condition if the scale descriptor "slightly" did not fall within their latitude of rejection (n = 4).

[7]Given that participants were given feedback about their independence, these same measures were also assessed in regards to independence.

[8]In order to maintain similarity in items across all participants, an alternative was to have participants in the no feedback condition indicate their reactions to the feedback about the hypothetical person. However, having participants in this condition indicate their expected reactions to feedback about themselves had the advantage of capturing these participants' beliefs about themselves as they progressed through the experiment, and thereby offered a better comparison standard against participants in the other conditions. It is important to note that hypothetical feedback did not perfectly match the feedback that other participants received. Participants in the no feedback condition were asked to indicate their expected response to being told that they were *not* outgoing (vs. *slightly* outgoing).

[9]Two participants in the verifying/challenging condition and one participant in the challenging/verifying condition were considered wrongly placed in a condition because the scale descriptor *slightly* did not fall within their outgoing latitude of rejection.

[10]One participant who was strategically placed in the challenging-only condition because the verifying feedback did not fall within that participant's latitude of acceptance was also eliminated from analyses.

[11]Amongst the experimental participants included in the analyses in both studies, initial outgoingness certainty did not differ overall across the studies or within each of the certainty groups across the studies, all p's $> .10$. As in Study 1, initial outgoingness certainty amongst the experimental participants was rather high and of limited range ($M = 4.66$, $SD = .98$, $min = 2$, $max = 6$).

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