

CITATION: Oyserman, D. & Yan. V. X. (in press). Making meaning: A culture-as-situated cognition approach to the consequences of cultural fluency and disfluency. In S. Kitayama and D. Cohen (Eds.), *Handbook of Cultural Psychology*. NY: Guilford Press

Making meaning: A Culture-as-Situated Cognition Approach to the Consequences of Cultural Fluency and Disfluency

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Author note: This chapter was much improved by comments from faculty and students across an array of institutions, including most recently the Open University of Israel, University of California Irvine, and Southwest University, Chongqing China.

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Abstract

Cultures are dynamic and changing, yet at any point in time, being a part of a culture means knowing what to expect in everyday life as it unfolds. We describe a culture-as-situated-cognition approach to understanding how culture helps people get through their everyday lives, conceptualizing culture as a sense-making framework including the practices, meanings, structures and values shared by members of a group in a particular time and place. Culture-as-situated-cognition starts with the idea that people have available in memory an array of culturally-rooted associative knowledge networks: some of these networks include content, procedures, and goals related to overarching themes of individualism, collectivism, and honor (cultural mindsets). Other networks organize knowledge about various aspects of everyday life (e.g., what breakfast entails). In their own culture, people mostly experience situations that match their (implicit) expectations so that not much thought is needed. When these (implicit) expectations are violated, something feels awry and closer consideration is warranted. The terms ‘cultural fluency’ and ‘cultural disfluency’ capture both the cultural and the metacognitive (thinking about thinking) aspects of this process. People do not have to interpret their metacognitive experiences but often do. Cultural fluency and disfluency are the result of the interface between what observers’ cultural expertise leads them to (implicitly) expect, what they actually observe, and the meaning they draw from their metacognitive experience of ease or difficulty. Downstream consequences of these interpretations depend on whether people infer that the source of experienced ease or difficulty is external (in the situation) or internal (themselves). Taking a culture-as-situation approach spotlights an underappreciated aspect of culture, which is that culture allows people to get through their days without much thought and while also alerting them when attention might be warranted. Taking a culture-as-situated-cognition approach also solves a puzzle in cultural psychology research, which is that small situational cues are sufficient to change seemingly fixed societal-group differences. This puzzle is resolved by considering that individualistic, collectivistic, and honor cultural mindsets are universally available though differentially situationally cued. Some seemingly fixed cultural differences are actually differences in accessibility, rather than in availability, of a cultural mindset.

(Word count = 349)

Overview

Cultures are dynamic and changing, yet at any point in time, they are substantive. As a result, being a part of a culture means knowing what to expect in everyday life as it unfolds. We describe a culture-as-situated-cognition approach to understanding how culture helps people get through their everyday lives, conceptualizing culture as a sense-making framework including the practices, meanings, structures and values shared by members of a group in a particular time and place. Culture-as-situated-cognition theory starts with the idea that people have available in memory an array of culturally-rooted associative knowledge networks, only some of which are activated in any given context. Activated associative knowledge networks shape expectations and have downstream consequences for thinking, feeling and doing. Some of these associative knowledge networks include content, procedures, and goals related to overarching themes of individualism, collectivism, and honor (cultural mindsets), others of these networks organize knowledge about various aspects of everyday life (e.g., what weddings, breakfasts, and holidays entail).

Culture supports sense making by influencing the content of the automatic predictions people make as to what will happen next in any given situation. Predictions emerge from activated culturally-rooted associative knowledge networks and are automatically checked against an error detection system. This yields a metacognitive experience of ease (fluency) when observation matches culturally-rooted prediction and of difficulty (disfluency) when an error is detected (mismatch). In their own culture, people mostly experience situations that match their (implicit) expectations¹. The ensuing metacognitive experience of ease implies that not much thought is needed; however situations vary and sometimes these (implicit) expectations are violated. When that happens, the ensuing metacognitive experience of is difficulty. Something feels awry and closer consideration is warranted. The terms ‘cultural fluency’ and ‘cultural disfluency’ capture both the cultural and the metacognitive (thinking about thinking) aspects of this process. People do not have to interpret their metacognitive experiences but often do.

Cultural fluency and disfluency are the result of the interface between what observers’ cultural expertise leads them to (implicitly) expect, what they actually observe, and the meaning they draw from their ensuing metacognitive experience of ease when observation and expectation match or difficulty when observations violate expectations. Interpretation is the result of drawing meaning from the metacognitive experience of *ease* when culturally-rooted implicit expectations match observations and from the metacognitive experience of *difficulty* when culturally-rooted implicit expectations are violated --do not match observations. Downstream consequences for thinking, feeling, and doing depend on whether people infer that the source of experienced ease or difficulty is external (in the situation) or internal (themselves). Interpretation does not require explicit self-reportable thoughts or emotions such as “This is not

¹ A number of theories, including the New Look (Bruner, 1957; Bruner & Goodman, 1947), confirmation bias (Wason, 1960), self-fulfilling prophecy (Merton, 1948; Synder, 1984), stereotype theories (Hamilton & Troler, 1986) would predict that expectations usually appear to be met because people see what they are ready to see. Yet in spite of people’s readiness to perceive what they expect to perceive, expectations are sometimes violated. What happens next? A culture-as-situated-cognition approach makes novel predictions about the predicted downstream consequences of expectation violations as well as expectation confirmations by introducing the concepts of cultural fluency and cultural disfluency.

traditional!” or “This is not similar to what I do!” or “I don’t feel happy!” or “I feel anxious!” or “I feel angry!” Taking a culture-as-situation approach spotlights an underappreciated aspect of culture, which is that culture allows people to get through their days without much thought and while also alerting them when attention might be warranted.

If culturally-rooted expectations match reality, things have unfolded as expected, implying: ‘all’s right with the world.’ The metacognitive experience here is of ease: There is no problem signal so there is no need to think more. In contrast, mismatches between culturally-rooted expectations and observed reality are unexpected and require explanation. Things have not unfolded as implicitly expected and this signals a possible problem. Mismatches require considering why expectations were wrong. This process of considering yields a metacognitive experience of difficulty (thinking feels effortfully difficult) given that easy prediction was off the mark. What makes something feel easy or feel difficult is not the thing itself, but its fit with culturally-rooted and culturally-bound expectations – hence a particular stimuli can be experienced as fluent or disfluent because of the cultural knowledge brought to bear. Experiencing confirmation (expectation-observation match) or violation (expectation-observation mismatch) requires having the cultural expertise to know implicitly what to expect and is a *metacognitive* experience, a feeling about thinking. This experience of fluency when there is a match and of disfluency when there is a mismatch needs to be interpreted; as we will show in this chapter how these metacognitive experiences are likely to be interpreted matters.

That each societal culture differs in its practices, traditions, and ways of doing things is not a particularly novel insight nor is it perhaps particularly surprising to say that sometimes the unexpected happens. However, as detailed in this chapter, buried in this seemingly mundane and taken-for-granted aspect of culture is a novel insight about the downstream consequences of having cultural expertise for thinking, feeling, and doing. We divide our chapter into parts with each part highlighting a piece along the way to understanding the current state of knowledge about the cognitive and metacognitive implications of cultural fluency and disfluency for thinking, feeling, and doing.

First, we outline our general framework for understanding culture -- culture as situated cognition theory. We define what we mean by culture and cultural expertise within this theoretical framework. Second, we provide an overview of the neural basis of cultural fluency and disfluency responses by describing the error detection system. Third, we describe how conditions of cultural fluency or disfluency arise and how researchers manipulate them in the lab to understand processes that occur in the world outside the lab. Fourth, we discuss downstream consequences of interpreting experiences of cultural fluency and disfluency on thinking, feeling, and doing. We provide examples of consequences in each domain. For *thinking*, or cognitive processing, we articulate consequences for simple and complex cognitive task performance and for associative and systematic reasoning. For *feeling*, we focus on feelings as informative – either implying that all’s right with the world or not. We articulate consequences for experienced inherence and essentialism, as well as possible consequences for well-being and for momentary affective response. For *doing*, or behavioral responses, we articulate responses to persuasive messages and consequences for engagement in mindless as compared to mindful behaviors. Fifth, we provide a summary overview.

Culture-as-Situated-Cognition Theory

What does 'situated' cognition mean?

Situated cognition focuses on 'thinking in the world' – the impact of social contexts on thinking and action (Meier, Schnall, Schwarz, & Bargh, 2012; Fiske & Taylor, 2013; Schwarz, 2007; Cesario, Grant, & Higgins, 2004). Situated approaches suggest that 'thinking is for doing' with the implication that people are sensitive to their immediate environment, use the subset of all their knowledge that is accessible in the moment, and interpret what comes to mind in light of contextual demands (Fiske & Taylor, 2013; Bless, Schwarz, & Wänke, 2003). What a situation implies depends on how one thinks about it – what comes to mind to make sense of it.

What comes to mind can be knowledge – semantic content (Srull & Wyer, 1979), goals (Förster, Liberman, & Friedman, 2007), and procedures (Oyserman & Lee, 2008; Schwarz, 2011; Wyer & Xu, 2010) -- or metacognitive experiences of ease or difficulty while thinking about content, goals, and procedures (Bless & Schwarz, 2010). Each yields a signal as to how to process information to make sense of experience and hence how to respond. Unless they have reason to exclude it, people tend to include accessible knowledge and metacognitive experience of ease (fluency) or difficulty (disfluency) in their judgments (Bless & Schwarz, 2010).

While people are sensitive to what comes to mind and to their experience of thinking about what is on their mind, they are not sensitive to the specific source of accessible information or accessible feelings of ease and difficulty (Schwarz, 2005, 2007). Hence, information and feelings may carry over to inform judgment on subsequent tasks, even if the information or feelings on one's mind are not relevant to the task at hand (Bless & Schwarz, 2010; Schwarz & Clore, 1983). Moreover, in each situation, the interpretive lens individuals bring to bear mediates the effects of ease and difficulty on what is understood (Alter & Oppenheimer, 2009; Briñol, Petty, & Tormala, 2006; Schwarz, 2004). An experience of fluency or disfluency can imply something about the outside world or it can imply something about oneself (Alter & Oppenheimer, 2009; Fisher & Oyserman, 2017; Reber & Schwarz, 1999; Schwarz et al., 1991; Schwarz, 1994).

Culture-as-situated-cognition theory (Oyserman & Lee, 2007; Oyserman, 2011, 2017) starts with the assumption that humans live in cultures, that cultures address universal demands of living with others, and that people make sense of what the immediate context seems to imply using a cultural lens. By emphasizing immediate context, culture-as-situated-cognition theory de-emphasizes speculation about distal causation of current between-group differences. By focusing on immediate context, culture-as-situated-cognition theory reconciles literature documenting what appear to be chronic cross-cultural differences with literature documenting situated flexibility (Oyserman, 2016). This approach highlights two largely overlooked points: First, *culture* can be represented as a set of associative knowledge networks. People have access to and can use multiple culturally-rooted associative knowledge networks, depending on which is cued in context. These knowledge networks include both cultural mindsets (content, procedures, and goals related to overarching themes of individualism, collectivism, and honor) and specific culturally-rooted knowledge about how things work (e.g., what breakfast entails). Second, these culturally-rooted associative knowledge networks provide mental models, affording people the *cultural expertise* to predict how situations should unfold. Therefore, what matters for meaning making is the cultural mindset accessible in the moment. Accessible mindsets yield culturally-rooted expectations. If observation implies mismatch with expectations, this requires attention to

understand why. In this chapter, we focus on this latter prediction. To understand how, we first define what we mean by culture and cultural expertise.

Defining culture within culture-as-situated-cognition theory

As a starting point, culture-as-situated cognition theory assumes that human culture developed from the survival necessity of connecting with others and adapting to group living (Boyd & Richerson, 1988; Cohen, 2001; Haidle et al., 2015; Oyserman, 2017; Schwartz, 1992). Living together requires that people coordinate and organize their relationships, clarify group boundaries and notice and reward innovation so that they can imitate or exploit innovation as it occurs and otherwise fit in and know from whom and to whom they owe allegiance (Boyd & Richerson, 2005; Kurzban & Neuberg, 2005; Oyserman, 2011; Schwartz & Bardi, 2001). Though the basic problems of group living must be addressed, human-made cultural solutions can put more emphasis on one or another aspect of these depending on ecological niche. In each society, practices evolve to create 'good enough' ways to regulate relationships, specify group boundaries and what to do about them, and spotlight when innovation is acceptable or valued (Cohen, 2001; Boyd & Richerson, 2005; Kurzban & Neuberg, 2005; Oyserman, 2012, 2017; Schwartz, 1992). Coordinating and organizing relationships and noticing and rewarding innovation requires 'social tuning' --sensitivity to others' perspectives and 'self-regulation' -- the ability to control the focus of one's attention (Chiu et al., 2015; Oyserman, 2017; Shteynberg, 2015). Indeed, people are sensitive to cues about when to imitate (fit in), when to innovate (Clegg & Legare, 2015; Legare & Nielsen, 2015), and when group boundaries matter (Boyd, Richerson, & Henrich, 2011; Haidle et al., 2015).

Solutions are 'good enough', rather than optimal. However, once developed, they become 'sticky' by virtue of being the ways 'we' do things --'our' structures, practices, norms, and values (Cohen, 2001). Taken together, this set of good enough solutions forms culture, the particular set of practices people in a particular society, time and place share. Once developed, cultural solutions permeate all aspects of behavior, constrain and enable perception and reasoning, and provide a shared blueprint or outline for meaning making across a variety of situations (Chiu, Gelfand, Yamagishi, Shteynberg, & Wan, 2010; Nisbett & Noranzayan, 2002; Oyserman, 2017; Shteynberg, Gelfand, & Kim, 2009; Shweder & LeVine, 1984; Triandis, 1972, 2007). In this way, culture is in part a set of associative knowledge networks, tacit operating codes or meaning making frameworks through which people make sense of their world (Geertz, 1973) and understand what they want, and how they go about getting it (Bond, 2002; Fiske, 2002; Kitayama & Markus, 1994; Sanchez-Burks, Nisbett, & Ybarra, 2000; Swidler, 1986). As a result, culturally appropriate situations seem right and generate an experience of fluency; culturally inappropriate situations—even when the violation is subtle—seem wrong or off-key and generate an experience of disfluency.

Cultural expertise and culture-as-situated-cognition

From a culture-as-situated-cognition perspective, cultural expertise --knowing how things work in one's everyday life -- is not reducible to whether a culture is comparatively more or less 'individualistic', 'collectivistic', or 'honor' focused (Oyserman, 2017). Cultural expertise provides a way of knowing what to expect in everyday situations so the world feels sensible and orderly. This includes but is not limited to knowing: when uniqueness is good and valued; how to

connect; and which aspects of reputation matter. People gain cultural expertise simply by being socialized in a society; beyond that, moving to or living in a society for a length of time yields varying degrees of this expertise (Morris, Chiu, & Liu, 2015; Morris, Fincher, & Savani, this volume; Mesquita, this volume). Whatever way acquired, people experience cultural expertise as the simple and obvious way things are, as can be seen in the following examples: A beaming bride walks down the aisle toward her soon-to-be husband. What color is her dress? Breakfast is being prepared. Will there be cucumbers? For Americans, ‘white’ and ‘no’ likely come to mind easily as the obvious and natural answers -- but note that knowing what to expect requires availability of American cultural expertise -- what Americans in America have without noticing it. These culturally fluent answers ‘go without saying.’ They feel so obvious that posing the bridal dress or cucumber breakfast questions can feel like riddles, highlighting the possibility that the questioner means something other than the obvious. That is what makes the question ‘who was buried in Grant’s tomb?’ a funny riddle – the answer ‘Grant’ is so obvious that people are often stumped, assuming that the question would not be asked if the answer really was ‘Mr. Grant.’

This experience—of naturalness, obviousness and ease—is neither reserved for Americans nor only applicable to these answers. Answer content – what the easy, obvious, and natural answers are – may change across cultures as well as across time in a culture. Currently, wedding dresses could be red, white, or pink in Chinese culture and cucumbers could easily be on the breakfast menu in Israeli culture. Expectation changes across cultures but the feeling of obviousness does not. Knowing the culture – the values, norms, practices and ways of being in a particular time and place -- means that the answers spring to mind easily and feel obvious.

Note that despite this obviousness, variability exists. Consider our breakfast example. American breakfasts usually have no vegetables at all but of course, they can and sometimes do. For example, some omelets include cooked vegetables. Raw vegetables – cucumbers, tomatoes are common in Israeli breakfasts, but cooked ones are not. Here, cooked vegetables are also possible, for example, a fancy breakfast could be a base of cooked vegetables with an egg on top. We focus on the consequences of both obviousness and variability.

Activating cultural expertise via culturally-rooted associative knowledge networks

Distinguishing availability and endorsement

Having cultural expertise entails knowing how things work. Using the language of culture-as-situated-cognition theory, cultural expertise entails *availability* (not necessarily endorsement) of culturally-rooted associative knowledge networks. Cultural expertise does not necessarily imply that a person agrees with or acts on cultural norms, practices, meanings, or values. That a culturally-rooted associative knowledge network is available, does not mean that its contents are *endorsed*. People might agree or disagree with their culture’s practices, its values, meanings or structures (e.g., Morris et al., 2015; Oyserman, Kimmelmeier, & Coon, 2002). Yet by virtue of being socialized in a culture, a set of practices, values, meanings and structures are available, part of culturally-rooted associative knowledge networks located in one’s memory. This availability allows people to make sense of their world and predict how situations will unfold. Thinking feels easy and fluent when situations seem to match one’s cultural expertise and unfold following one’s implicit or explicit cultural scripts.

Distinguishing availability and accessibility

Culturally-rooted cues are ubiquitous. However, in natural settings, it is often difficult to distinguish availability and accessibility. Availability means that something is in memory. Accessibility means that it is on the mind in the moment. Does finding a null effect mean that something is not available in memory or does it mean that it may be in memory but is not on the mind in the moment?

Which culturally-rooted associative knowledge network is activated at any given point in time depends on a number of factors --a network is more likely to be activated if it has been frequently activated, if it has recently been activated, and if it seems relevant to one's immediate environment (Bargh, 1994; Collins & Loftus, 1975). Because 'thinking is for doing' (Fiske, 1992), which details are processed as meaningful cues is a function of cultural expertise and in particular, what is culturally and situationally relevant in that moment. Some cues are likely to be peripherally associated with a number of knowledge networks, and more centrally located in others. For example, from a Western cultural lens, seeing lights strung up in December may activate a Christmas knowledge network; seeing a nativity scene may activate this knowledge network no matter the time of year. The birth of Christ is central to a propositional understanding of what Christmas is whereas lights are merely associated with the connected practices (e.g., Gawronski & Bodenhausen, 2007, 2011). Both propositional understanding and associated practices can cue cultural fluency and disfluency.

Whether a given cue activates a particular knowledge network depends on cultural expertise: Seeing a string of lights in December will only activate the 'Christmas' associative knowledge network if the person already holds a 'Christmas' associative knowledge network and that network includes 'string lights.' The 'Christmas' associative knowledge network is more likely to be on the mind in December (around Christmastime) and when Christmas-related features such as green and red paper wrapped gifts are in the immediate environment. Whether Christmas carries with it an individualistic ("what do I want for Christmas?"), collectivistic ("do my gifts meet my obligations?"), or honor ("are other people sending me cards and gifts that demonstrate their respect for me?") mindset depends in part on immediate cues. We represent this process graphically in the first two panels of Figure 1 by showing how a cue (e.g., a string of lights) might cue a culturally-rooted associative knowledge network such as Christmas and in this way automatically trigger a prediction: *gifts will be exchanged*. Not all of the many cues in a context receive equal attention --thinking is for doing after all, so whether or not people attend to the lights should be a function of what else is happening. One key feature of this process is that it is probabilistic, rather than deterministic. Cues will only probabilistically activate certain associative knowledge networks. In our example, the string of lights is more likely to activate a 'Christmas' associative knowledge network in December while at the shopping mall than in October at a restaurant or in July while at the beach. The smaller nodes in the middle (brown) panel of Figure 1 represent these other possible associative knowledge networks.

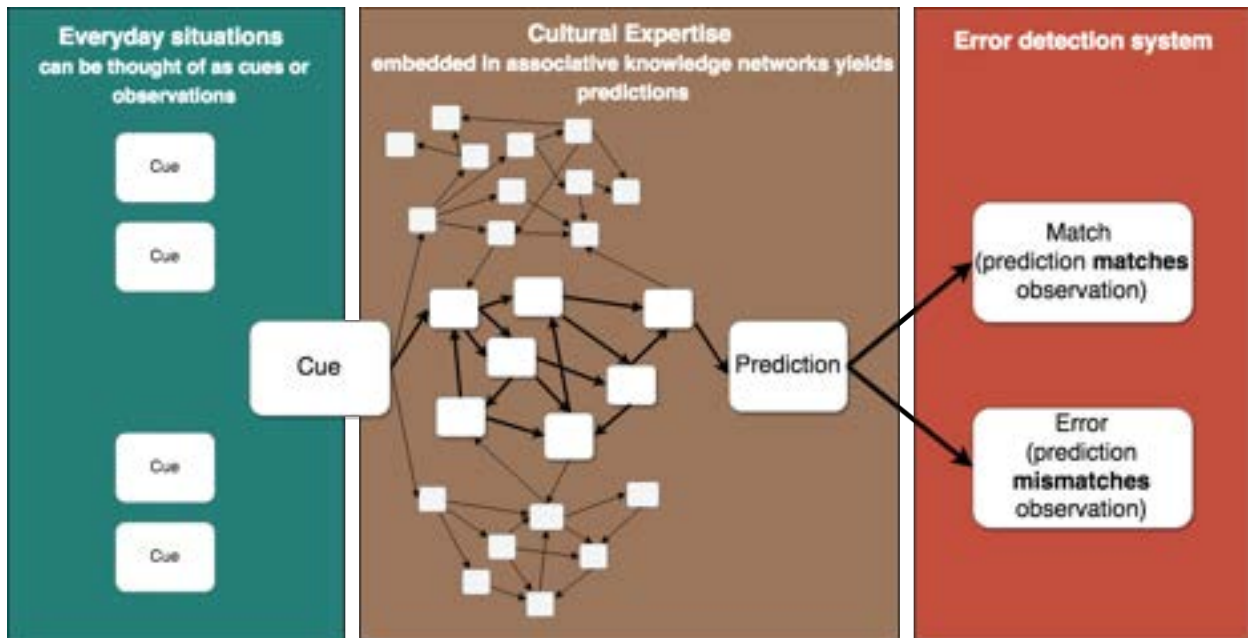


Figure 1. From cues to prediction. Features, or cues, in the immediate situation (left, teal panel) interact with cultural expertise to activate an associative knowledge network (middle, brown panel). This activated network in turn produces a prediction (brown panel), which is then compared against the observed situation (right, red panel). Predictions generated from the activated associative knowledge networks may either match or mismatch the observed situation. Figure adapted with permission from Oyserman (2017).

The Error Detection System

As documented in Figure 1, situations activate culturally-rooted associative knowledge networks which yield predictions (*this is Christmas, there will be gifts!*). Making a (implicit or explicit) prediction is not the end of the process. Many theories predict that people see what they expect or are motivated to see (e.g., Bruner, 1957; Goodwin & Bruner, 1947; Merton, 1948; Synder, 1984; Wason, 1960). Yet no matter how motivated they are to find what they expect to find and to observe what they expected to observe, people's expectations are sometimes violated. Life unfolds, and it does not always unfold as activated culturally-rooted associative knowledge networks would lead one to expect it would. Predictions do not always match observations.

In this section, we describe the error detection system because the process we are describing is compatible with neural predictions models and the concept of the 'predictive brain'. Hence, the implication is that the culture-based prediction process is likely to be a human universal (Bar, 2009; Bubic, von Cramon, & Schubotz, 2010). The notion of the predictive brain highlights the central importance of predictive processing. The brain is designed to process information not only to make sense of the past and present but also to be ready for future states of the body and the environment. The brain uses a 'proactive link' (Bar, 2009), comparing novel inputs to existing, familiar representations. Once a 'good enough' analogy for the novel input is found, associated representations are rapidly activated, pre-sensitizing the related representations

that are most likely to occur -- these ‘presensitized representations’ are called ‘expectations’ in everyday language.

Many brain regions and neural networks are involved in computation and encoding of prediction errors (Bubic et al., 2010) across a wide range of domains (motor, perceptual, cognitive, and motivational control and learning; denOuden, Kok, & Lange, 2012; Friston, 2005). Prediction generation and error detection testing is found at all levels of the brain and considered crucial for driving both low-level neural processes and high-level behaviors (e.g., social cognition). At the lower perceptual level, for example, predictions facilitate rapid interpretation and disambiguation of noisy or ambiguous inputs (Kersten & Yuille, 2003; Sterzer, Frith, & Petrovic, 2008). At a higher cognitive level, for example, the predictive brain underlies person perception -- the mirroring system (Rizzolatti & Craighero, 2004) has been implicated in ‘social tuning’, people’s capacity to form mental representations of others and to infer their goals (Brown & Brüne, 2012; Kilner, Friston, & Frith, 2007; Saygin et al., 2012).

To improve calibration and minimize future potentially costly surprises, the prediction system receives continuous feedback as to whether predictions match or mismatch observations. Signal error is low when a prediction matches observation—if all is as expected, then one can save energy by limiting attention to the expected situation and thus reserve resources to attend to novelties (Bar, 2009; Friston & Stephan, 2007; Schultz & Dickinson, 2000). Matches increase certainty of future prediction. Mismatches (prediction errors) reduce certainty of future prediction and signal that there is something to be learned or that something in the environment has changed (Friston & Stephan, 2007; Rescorla & Wagner, 1972). Error signals do not provide an answer as to what has changed or what is to be learned but do signal that attention is needed, resulting in a shift from lower to higher cortical levels to facilitate the updating of predictions (e.g., Bar, 2009; Fletcher & Frith, 2008; Friston, 2005; Schultz, Dayan, & Montague, 1997). It is as if error signals send a report: “Something is wrong, but I do not know what it is.”

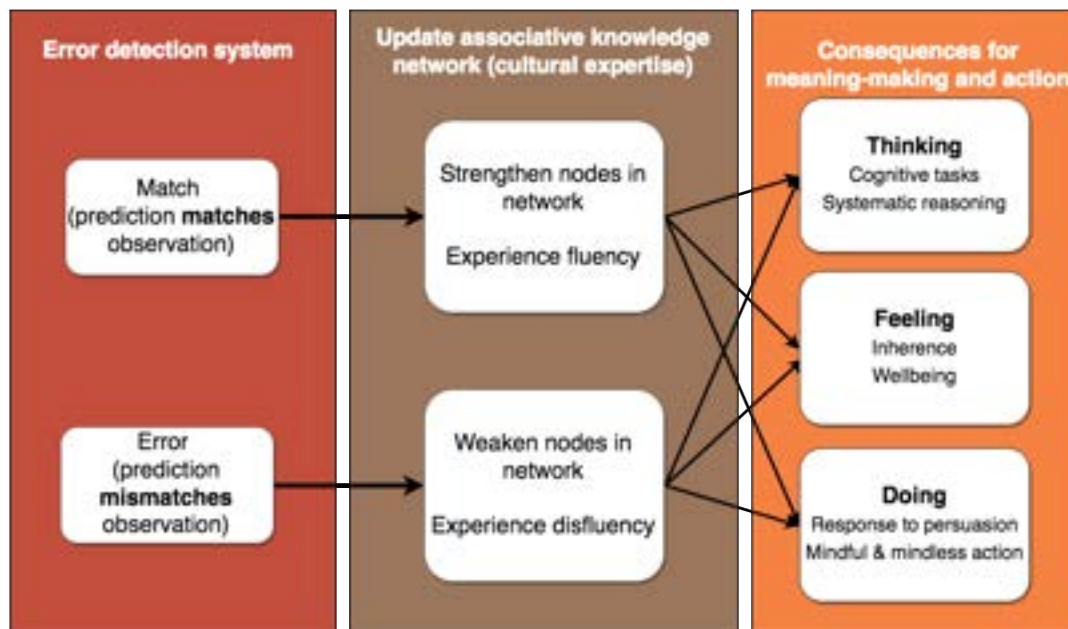


Figure 2. From predictions to meaning-making and action. When predictions from the activated culturally-rooted associative knowledge networks are borne out in observations, nodes in the

network are strengthened, certainty in understanding the world and experienced fluency increase – the world is as it should be. Nodes in the network are weakened and experienced uncertainty and disfluency increase when predictions mismatch observations, influencing thinking, feeling, and doing. Figure adapted with permission from Oyserman (2017).

From Error Detection and Cultural Expertise to Cultural Fluency and Disfluency

From a culture-as-situated-cognition perspective, predictions are those things that are culturally expected because they are part of culturally-rooted associative knowledge networks (Oyserman, Novin, Flinkenflogel, & Krabbendam, 2014). Prediction errors arise when observation belies these culturally-rooted expectations. While predictive brain research has not focused explicitly on culture, culture-as-situated-cognition theory highlights two links: First, as noted above, predictions are often drawn from culturally-rooted associative knowledge networks. Second, the error detection system emits a signal of match or mismatch and these signals themselves yield a metacognition -- an experience of ease (when there is a match) or an experience of difficulty (when there is a mismatch). People do not always interpret these experiences of ease and difficulty, but often do. To the extent that experiences of ease or difficulty are interpreted as implying something about oneself or the world, these experiences have implications for downstream processing and behaviors that we describe later in the chapter. Figure 2 illustrates consequences of match and mismatch between observed reality and the predictions generated from an activated culturally-rooted associative knowledge network.

From cultural expertise to cultural fluency

Like all associative knowledge networks (Waldmann, 2017), culturally-rooted associative knowledge networks are likely to vary --in size, density, links to other networks, recency, and frequency of activation. What people notice in a situation depends in part on their pre-existing associative knowledge networks (Moores, Laiti, & Chelazzi, 2003). When predictions are borne out in observations, the prediction-observation match strengthens the nodes in the network (van Kesteren, Rijpkema, Ruiters, & Fernández, 2010). Certainty in understanding the world increases; the world is as it should be. Matches generate a metacognitive experience of ease (fluency), which can be a source of a subtle affective response: the metacognitive experience of fluency is positive. In contrast, mismatches generate a metacognitive experience of difficulty (disfluency), which can be a source of a subtle negative affective response. The affective response itself is subtle, detectable using physiological measures (e.g., of facial muscles, Winkielman & Cacioppo, 2001). Affective response can carry over to judgment (Winkielman, Schwarz, Fazendeiro, & Reber, 2003; Winkielman, Schwarz, Reber, & Fazendeiro, 2003). Because it is people's cultural expertise which gives rise to experienced ease as a consequence of match to prediction, we term this experience 'cultural fluency.'

However, events do not always unfold as expected. What if, as shown in Figure 3, bottom panel, the beaming bride is wearing a green wedding dress, the groom's tuxedo has some purple and (not pictured here) the tiered wedding cake is brown and yellow and decorated with cogs. The mismatch between predictions and observations contrasts with the expectation of a bride in a white dress, a groom in a black tuxedo (Figure 3 top panel) and a tiered white wedding cake with white decoration (not pictured here). Culture-as-situated-cognition theory predicts that mismatch with a culturally-rooted expectation yields metacognitive disfluency --thinking is difficult,

something went awry, and it is necessary to understand why. This is the case even though context still implies quite clearly that it is a wedding and identifies who the bride and the groom are. Because it is cultural expertise that gives rise to an experience of disfluency as a result of mismatch to prediction, this experience is termed ‘cultural disfluency.’

Thus, cultural fluency and cultural disfluency are not features of the stimuli alone or of the observer alone. Instead, they are the result of the interaction between what observers’ cultural expertise leads them to expect and what they actually observe. Cultural fluency and cultural disfluency arise when predictions made from the automatically spreading activation of a culturally-rooted associative knowledge network are borne out (match observation) or are violated (mismatch observation). Over time, repeated exposure to matches between culturally-rooted expectation and observation should increase certainty of prediction and increase feelings of inherence --the belief that the world is the way it ought to be (e.g., Salomon & Cimpian, 2014). In contrast, repeated mismatches should reduce certainty and eventually change the associative network itself, including changing certainty about the deep essence of categories (e.g. essentialism, Gelman, 2003). In this next section, we describe how researchers study cultural fluency and disfluency in the lab.



Figure 3. Example of culturally fluent (top) and disfluent (bottom) stimuli used in Mourey, Lam, and Oyserman (2015).

Studying cultural fluency and disfluency in the lab

While the insights of cultural fluency and cultural disfluency come from everyday life, for a number of reasons, researchers typically use specific and artificial priming methods rather than rely on descriptions of the natural environment. One important reason is that this method allows researchers to have control over which culturally-rooted associative knowledge network is brought to mind (accessible). This allows researchers to distinguish accessibility from availability and to move from description of outcomes to prediction of process models.

For cultural researchers, core questions have to do with the distinction between availability, accessibility, and endorsement. Features of situations can only bring to mind the culturally-rooted knowledge networks a person already has, distinguishing availability and accessibility. An accessible knowledge network may influence prediction of how the situation will unfold whether or not the individual endorses the culturally-rooted norms, practices and values this network contains. Thus, for example, priming chronically collectivistic people with an individualistic mindset can shift their accessible mindset to an individualistic one only if an individualistic mindset is available for use. Whether or not people endorse individualism as a value system is a separate question. Knowledge that is not available has to be learned, it does not spring forth from brief exposure to a situation (Bargh, 2016; Higgins, 1996). The same is true for the particulars of cultural expertise generally. Handing a person a plate with pumpkin and bat decorations should not cue “Halloween!” for a person lacking implicit knowledge of the colors and decorations that are associated with Halloween or a sense of the time of year when Halloween lands. Without the associative knowledge network of “Halloween”, a plate is just a plate. Researchers can demonstrate effects of activated culturally-rooted knowledge networks by controlling what is accessible. Separately, they can ask to what extent these effects are a function of actually endorsing particular values or norms or practices by measuring endorsement and testing its effects.

The logic of priming is that temporarily accessible ‘on-the-mind’ information carries over to the next task, unless something about the situation undermines its relevance (e.g. Bargh & Chartrand, 2000; Bless & Schwarz, 2010; Schwarz, 2007; Srull & Wyer, 1979). Even if people are aware of what is on their mind, unless they are aware that it is on their mind because the researcher drew their attention to it, they are likely to assume it is on their mind because it is relevant to the task at hand (Bargh, 2016). Because features of situations should influence how an accessible culturally-rooted knowledge network is used, priming is typically accomplished as a two-step process (priming task, test of downstream consequences). In the first step, cultural fluency or disfluency is the consequence (the result of priming); in the second step, cultural fluency or disfluency is treated as the independent variable—the manipulation that affects downstream consequences. This two-step process is useful because it allows researchers to test the effect of accessible information separately from people’s beliefs about what they would do or should do. For culture researchers, the priming task brings to mind a culturally-rooted associative knowledge network. Increasing accessibility of any specific aspect of the network can do this, including relevant content, procedure, goal or metacognitive interpretation, whether or not it would otherwise have come to mind. The second step for culture researchers is to assess whether or not the predicted downstream consequences are found.

Much of the research to date has not focused on consequences for cultural fluency and disfluency. Instead, it has focused on other consequences of activating a culturally-rooted associative knowledge network at all (Oyserman, 2016, 2017). This research has demonstrated

that a wide array of subtle situational cues can 'turn on' or elicit individualistic, collectivistic, and honor cultural mindsets (see Oyserman, Coon, & Kemmelmeier, 2002; Oyserman & Lee, 2008; Novin & Oyserman, 2016). Each cultural mindset can be thought of as a web of interlinking culturally-rooted associative knowledge networks including the specific content, procedures, and goals relevant to the broad cultural themes of individualism, collectivism, and honor². While literature to date focuses mostly on cultural mindsets --individualistic, collectivistic, and honor mindsets, there is no reason to assume cultural effects are limited to these mindsets. When a culturally-rooted associative knowledge network is brought to mind, it should be available and influence subsequent judgment unless its relevance is called into question. For example, activating a 'Christmas' associative knowledge network might lead to predictions about gifts, parties, seeing Santa Claus, the colors red and green, as well as the birth of Jesus, nativity scenes, family, religion and so on. Downstream judgment should be affected by whether observation matches these predictions.

To test this prediction, researchers randomly assign participants to visual or semantic stimuli that match or do not match culturally-rooted expectations (e.g., about breakfast, funerals, weddings) using actual cultural products, cards, photographs, or restaurant menus (e.g., Mourey, Lam, & Oyserman, 2015; Lin, Arieli, & Oyserman, 2017a, 2017b). The expectation is that exposure to these cultural products will increase the likelihood that networks of cultural knowledge will be activated and applied to the task-at-hand. Across studies, stimuli vary in likely centrality to a culturally-rooted associative knowledge network. Developing stimuli requires a fine-tuned knowledge of the specifics of a culture, to know what is 'right' and what is a bit off-kilter without being simply wrong or even insulting (e.g., Oyserman, 2011). Stimuli are linked to 'our' way of doing things (what to have for breakfast, which dresses brides wear for weddings) and to specific events centrally rooted in 'our' religion or origin myths (e.g., Easter for Christians in America, Purim for Jews in Israel, Qing Ming for Chinese in China). For example, Mourey and colleagues (2015) and Lin and colleagues (2017a) manipulated the cultural fluency of wedding photographs by manipulating the color of a bridal dress. Participants were asked to rate the quality of photographs from a wedding. The photographs were of equal quality but in one set the bride wore a white gown (culturally fluent condition; these images were rated as traditional) and in the other the gown was green or black (culturally disfluent condition; these images were rated as highly untraditional).

Cultural priming techniques can be used both between and within individuals. That is, researchers can randomly assign the same individuals to tasks in which different culturally-rooted associative knowledge networks are activated. This requires testing changes within person across time. The alternative is to randomly assign different individuals to tasks in which these

² A parallel productive line of research does not focus on cultural mindsets but on cultural, bicultural, and multicultural *identities* (e.g., Morris et al., 2015; Leung & Koh, this volume). These identities can be thought of as culturally-rooted associative knowledge networks with centrally located identity nodes. To test causal process, cultural researchers interested in cultural identities randomly assign participants to experience visual (e.g., images of Chinese cultural icons) or semantic (e.g., describing ways in which one is different from one's friends) stimuli meant to cue culturally-rooted associative knowledge networks including identity as central nodes (e.g., Oyserman & Sorensen, 2009). Research documents individual differences in how these knowledge networks are integrated as cultural identities (e.g., Cheng, Lee, & Benet-Martinez, 2006; Huynh, Nguyen, & Benet-Martinez, 2011).

culturally-rooted associative knowledge networks are activated. This allows comparing individuals at a single point in time. In each case, unless made aware of why this information has been activated, information from the activated knowledge network should carry over to the next task. Participants should experience ease if the activated knowledge network matches the demands of the task at hand and difficulty if it does not.

Consequences of Cultural Fluency and Disfluency

In this section, we describe downstream consequences of experiences of cultural fluency and disfluency for thinking (cognition), feeling (mood, inherence, well-being) and doing (responses to persuasion attempts, mindless and mindful behavior or action).

Thinking

Simple and complex cognitive task performance

Culture-as-situated-cognition theory predicts that people have access to multiple culturally-rooted associative knowledge networks and that accessible culturally-rooted associative knowledge networks influence meaning making and judgment. Research documents this process across a range of simple and complex cognitive tasks (e.g., Oyserman, 2017). When the activated culturally-rooted associative knowledge network includes procedures that match the requirements of the task at hand, performance improves. When the activated culturally-rooted associative knowledge network includes procedures that mismatch the requirements of the task at hand, performance is undermined.

While this literature does not use a cultural fluency and disfluency framework, we predict that people use the mental procedures associated with their currently accessible mindset because these procedures feel fluent. Thus, performance is not a function of which knowledge network is activated or of whether the activated knowledge network is the one that is chronically accessible. Instead, people use the mental procedure that is part of the activated network; whether this helps or undermines performance depends on whether it is the right procedure for the task at hand. If no network is activated, whichever culturally-rooted associative knowledge network is more chronically accessible is the one that likely will be on the mind; the mental procedure associated with that knowledge network will be used. From a cultural fluency and disfluency model, the activated mindset yields procedures that feel fluent to use and hence they are applied unless people have reason not to—for example, if they are explicitly told to use a different procedure.

For example, the literature suggests consequences from cuing an individualistic mindset: people perform better on complex analytic, de-contextualizing tasks such as the Raven's task (Oyserman et al., 2017). They are better at identifying images embedded in a larger picture in a 'hidden picture' task (Kühnen, Hannover, & Schubert, 2001). They make fewer mistakes in ignoring irrelevant information in visual and audio Stroop-like tasks (Oyserman, Sorensen, Reber, & Chen, 2009). The literature also suggests consequences from cuing a collectivistic mindset: people perform better on holistic, connecting tasks such as the Keep Track Task (Oyserman et al., 2017). They are better at recalling contextual (location) information (Oyserman et al., 2009) and at identifying compound letters made up of little letters (a Navon task, Kühnen & Oyserman, 2002). These effects of accessible culturally-rooted associative knowledge networks occur regardless of whether participants are from the United States or from Asia, even

though the cultural mindsets that are chronically active may differ in these countries (Kühnen & Oyserman, 2002; Oyserman & Lee, 2008; Oyserman et al., 2009, 2017).

The pattern of effects in the no-cued-mindset control conditions in these studies corroborates the prediction that chronic activation likely varies: In America, control participant performance resembled that of participants in the cued-individualistic mindset condition. In Asia, control participant performance resembled that of participants in the cued-collectivistic mindset condition. The implication is that without the experimental prime, many Americans would have an individualistic mindset accessible and many Asians would have a collectivistic mindset accessible. Note that in each of these studies, results depend on people using the primed cultural mindset even if it is not the optimal one for the task at hand. For example, in a task requiring holding category membership in mind, people primed with an individualistic mindset do worse than people primed with a collectivistic mindset (Oyserman, et al., 2017). In Hong Kong, control group participants are like collectivistic mindset participants and out-perform those in the individualistic mindset condition on this task. In the U.S., control participants are like individualistic mindset participants and the collectivistic mindset participants outperform both groups. When the task requires ignoring surface relationships and using rules, people primed with collectivistic mindsets do worse than people primed with an individualistic mindset (Oyserman et al., 2017). In Hong Kong, control group participants are like collectivistic mindset participants and the individualistic mindset participants outperform both groups. In the U.S., control participants are like individualistic mindset conditions and both groups outperform participants in the collectivistic mindset condition.

At the same time, studies that do not prime mindset sometimes simply provide instructions that are likely to fit or misfit with chronically accessible mental procedures given the likely cultural mindset. For example, Kitayama, Duffy, Kawamura, and Larsen, (2003) did not prime mindset but provided instructions that fit either the likely chronically accessible mindset of American participants or of Japanese participants. They found that people were better at performing a task when the instructions for drawing a line fit what they likely expected given the mental procedures associated with individualistic and collectivistic mindsets. If the draw-a-line task was explained as drawing a line of same length as you saw before, ignoring the context it was in (a mental procedure entailing pulling apart) Americans did better. If the draw a line task was explained as drawing a line that fit the proportion of the line to the box you saw before (a mental procedure relating and connecting) Japanese did better.

We believe that a cultural fluency conclusion can be drawn from this research even though it was not initially framed in terms of cultural fluency and cultural disfluency. Our logic is as follows: Using the mental procedures cued by an accessible cultural mindset feels fluent whether that mindset is chronically or momentarily accessible. The accessible cultural mindset sets up a prediction that tasks are best solved using the mental procedures in this associative knowledge network. People use the mental procedures that are part of activated knowledge networks even if the mental procedures linked to another culturally-rooted associative knowledge network would have been more efficient. Performance is a function of the match between accessible mental procedures and the mental procedures that would be efficient in solving a problem. The culturally fluent mental procedure may or may not be the better one for the task at hand. When no cultural mindset prime is used, people still make automatic predictions as to the mental procedure to use. In tasks such as the Kitayama and colleagues task (2011), the specific instructions either match or mismatch the likely activated mental procedure and prediction error yields disfluency. The task is experienced as difficult if the expected way to

draw a line is not the way the researcher wants it done. In other tasks --such as the Raven's or the Keep Track task -- the specific instructions (find the correct solution) do not themselves match or mismatch with a mental procedure and participants are not told which mental procedure to use, in these cases, using the on-the-mind procedure feels fluent whether or not it is the best one to use.

Systematic reasoning

Culture-as-situated-cognition theory predicts that people will use the accessible culturally-rooted associative knowledge network to make automatic predictions about what they will observe and that error detection cues systematic reasoning to unpack the error source. Evidence for this process comes from a number of studies using the Cognitive Reflection Task (CRT; Frederick, 2005). The CRT is a set of questions that have both a gut-based (but incorrect) response and a rule-based (and correct) response. An example of a classic CRT question is: *A ball and a bat together cost \$1.10. The bat costs \$1 more than the ball. How much does the ball cost?* Participants' gut-based response tends to be \$0.10; the rule-based correct answer, however, is \$0.05. The gut response here is "\$1.10 is a dollar more so, $\$1.10 - \$1.00 = \$0.10$ "; the rule here is " $\$1.00 + 2x = \1.10 , $x = \$0.05$. Hence, the bat costs \$1.05 and the correct answer for the cost of the ball is \$0.05."

In these studies, cultural fluency and disfluency is primed by having participants experience something that fits or does not fit cultural expectations. For example, the prime might be to read an obituary and choose the best organization of the paragraphs. In the culturally fluent condition, the family is sad, and the deceased is loved and will be missed. In the culturally disfluent condition, the family is not sad, and the deceased was not loved and the family is relieved to no longer have to deal with this person in their lives. The test is whether reading the disfluent text turned on systematic reasoning and hence changed performance on the next task (the CRT). Across multiple studies using different manipulations of cultural fluency and disfluency, participants in the culturally fluent condition (in which implicit prediction and actual observation likely matched) were less likely to use systematic reasoning than were participants in the culturally disfluent condition. Findings were consistent whether the fluent cue was the color pink (vs. the disfluent black or white) on Valentine's Day, wedding photographs in which the bridal gown was white (vs. green), a funeral obituary with sad (vs. happy) content (Mourey et al., 2015), or when rule breaking (eating on the metro) rather than benign behavior (reading on the metro) followed furtiveness (Oyserman, 2012). In each case, participants completed a task whether it was rating the quality of wedding photographs or organizing paragraphs of an obituary. Within the task they experienced fluent or disfluent elements (the color of the bridal gown, the affect of the obituary). This carried over to the subsequent task. Participants in the culturally fluent condition were more likely to go with their gut than were participants in the culturally disfluent condition.

In this particular task, going with a gut response yielded an incorrect answer. However, readers should not conclude that cultural fluency is always bad for performance. The larger point is that cultural disfluency increases systematic reasoning – using a rule is useful in the CRT task because a rule applies. But rules do not always apply for real-world problems and in these cases, a more intuitive gut-based approach would be better (e.g., Gigerenzer et al., 1999).

Feeling

Mood

Culture-as-situated-cognition theory predicts when cultural fluency and disfluency will occur and situated cognition studies document effects of fluency on affect (mood). Sad mood can serve as a problem signal, increasing the likelihood of systematic reasoning while happy mood serves as a signal that all is fine and increases the likelihood of associative reasoning (Alter, Oppenheimer, Epley, & Eyre, 2007; Schwarz, 2002). The implication is that cultural fluency and disfluency might influence mood, with mood influencing downstream cognitive processing. Research to date has not found such a connection, at least at the level of self-reported mood obtained by the Positive and Negative Affect Scale (PANAS; Thompson, 2007). Across five experiments, Mourey and colleagues (2015) found no pattern of mood effects related to cultural fluency-disfluency, whether the event was one that entailed generally positive events (weddings, picnics) or generally negative ones (funerals, obituaries). Lin and colleagues (2017a, 2017b) replicated this pattern of null effects. However, lack of results using a particular self-reported measure does not rule out the possibility that cultural fluency yields some sort of affective response. The response may be the kind of low level or “primitive” affective response described by Gawronski and Bodenhausen (2007, 2011) as part of associative processing of propositions. Getting a measure of this kind of mood effect may require using either basic physiological measures or indirect measures such as liking or consumption (Winkielman, Berridge, & Wilbarger, 2005). Indeed, Zayas and colleagues (2017) found that Americans liked Valentine’s Day-associated products (but not other products) more as Valentine’s Day neared. We interpret this increase in liking as implying that subtle carry-over mood effects of cultural fluency may exist.

Inherence

Culture-as-situated-cognition theory predicts that people will use the culturally-rooted associative knowledge network that is on their mind (accessible) to make automatic predictions about what they will observe. Mismatch between implicit prediction and observation implies that the world is not as expected, that something is not right. This should undermine people’s sense that the way things are now is the way things ought to be; hence inherence and essentialism should be undermined. In contrast, a match between implicit prediction and observation implies that the world is as one expects it to be. This should bolster inherence and essentialism.

A number of studies have assessed change in belief in inherence as a function of change in cultural fluency and disfluency (Lin et al., 2017a; 2017b). In these studies, inherence is measured by asking people how much they agree or disagree with a series of statements that imply that current practices are somehow natural, the way things ‘ought’ to be rather than one of many possibilities (Salomon & Cimpian, 2014). The scale includes statements such as: “It seems natural to use red in a traffic light to mean stop,” “It seems ideal that toothpaste is typically flavored with mint,” and “If intelligent organisms were discovered on another planet, they would probably communicate through sounds.” Lin and colleagues (2017a) divided participants in the U.S., China, and Israel into two groups. In one group, participants saw culturally disfluent stimuli and in the other group, participants saw culturally fluent stimuli. For example, researchers showed Americans real Valentine’s Day cards. Some were adorned with skull

patterns, others with heart patterns. Israelis were shown real breakfasts. Some were with cooked vegetables or meats others with raw vegetables or eggs. American and Chinese were shown real weddings with black or white wedding dresses. Materials were from the culture, yet varied in cultural fluency. In each case, participants exposed to the culturally fluent versus the culturally disfluent cue differed in how much they endorsed inherence. The feeling of fluency or disfluency “spilled over” to the subsequent task and so participants in the disfluent condition were more likely to disagree with statements such as, “It seems natural to use red in a traffic light to mean stop,” compared to participants exposed to the culturally fluent cue.

Wellbeing

Culture-as-situated-cognition theory predicts that people use the culturally-rooted associative knowledge network that is on the mind (accessible) to make automatic predictions about what they will observe. Repeated prediction error is likely to occur when people’s values and goals differ from the culture in which they are embedded, when they move to a different culture, or when the culture in which they are embedded changes rapidly around them. For example, after immigration or migration, one’s cultural expertise no longer applies to current contexts. By situating the ensuing experience within the cultural fluency and disfluency framework, it is easier to understand and experimentally test the psychological reaction to experiencing a new environment (also described as “culture shock”, Oberg, 1960). Culture provides meaning. In a new culture, making meaning can be tricky due to unfamiliar (Oberg, 1960, p. 177) and unpredictable (Adler, 1981) signs and signals that lead people to repeatedly make erroneous predictions.

In this section, we consider the possible downstream consequences for well-being and life satisfaction of repeated prediction error. Repeatedly making incorrect predictions should have downstream negative consequences for self-regard and well-being since people may interpret repeated failures as implying something about one’s competence. Perceived self-competence is associated with greater life satisfaction and well-being (Tafarodi & Swann, 1995). Moreover, repeated experience of prediction error should undermine one’s sense that the world is a knowable, orderly place, undermining life satisfaction, well-being and self-certainty--*perhaps I am not competent, perhaps I do not I know myself as well as I think I do either* (Smith, James, Varnum, & Oyserman, 2014; Skinner, 1996; Ward & Kennedy, 1992; Weisz & Stipek, 1982). If prediction error undermines sense of competence and certainty, then simply being aware of a disjuncture between one’s personal values and those of one’s culture should not be sufficient to turn off the negative consequences of this disjuncture. Negative consequences arise from not being able to predict smoothly how situations will unfold.

While we did not find any studies testing these hypotheses directly, we found what we interpret to be supporting evidence in studies examining circumstances in which there is a likely disjuncture between predictions and observations. In these studies, people whose values differ from the average national norm experience lower well-being (Lun & Bond, 2013; Zou et al., 2009) and less satisfaction with their personal life (Fulmer et al., 2010) and social relationships (Friedman et al., 2010). Research finds the same result when there is a disjuncture with organizational values, goals, and beliefs (Elfenbein & O’Reilly, 2007). While these correlational results cannot address causation, we infer that research finds these associations because disjuncture leads to prediction errors, lower experienced self-competence and self-certainty. Indeed, people outside of their culture feel better after they receive reminders of their own

culture (Fu, Morris, & Hong, 2015), presumably because being outside of one's culture, prediction errors are more likely, reducing experienced self-competence and self-certainty. The reminders of one's own culture bring back a more predictable world.

People whose values differ from their culture's values may or may not know this. People who know that their values differ from their culture's values have the extra task of trying to adjust for that, but they may not know how. Culture after all is not a set of explicit rules that can be systematically applied but a gist sense of how 'we' do things. Consider two everyday examples from American politics and university classrooms. Republicans and Democrats often experience people in the other party as being stupid or wrong or dangerous – and feel that the other party willfully misrepresents their own beliefs. The culturally fluent lens (that which seems to go without saying) is one's own; attempting to adjust to another lens is error-prone and awkward. Similarly, professors are often surprised by their poor course ratings and fail to understand how to properly adjust to improve student satisfaction. In both cases, being aware of a mismatch and even knowing quite a bit about the culture does not fully solve the problem. People who do not know that their values differ from their culture's values simply experience error without knowledge of why. Prediction errors occur because much of culture involves associative, rather than rule-based, propositional knowledge -- a gut-based set of intuitions rather than a rule-based set of propositions for behavior (Gigerenzer & Gaissmaier, 2011). Judgments attempting to use rules when gist-based processing is better because there are too many variables and too many unknowns are often error-prone (see for example, Dijksterhuis, Bos, Nordgren, & Van Baaren, 2006). Hence, we predict that people in both circumstances (knowing or not knowing that their values mismatch those of their culture) will experience prediction errors that are depleting of experienced certainty, sense of well-being and satisfaction.

Doing

Culture-as-situated-cognition theory predicts that people will use accessible culturally-rooted associative knowledge networks to make automatic predictions about what they will observe. Mismatch between implicit prediction and observation yields a metacognitive experience of difficulty, which implies that the world is not as expected, that something is not right. This sends a problem signal, requiring systematic attention and reducing 'going with the flow.' How people interpret their metacognitive experience of difficulty matters; for example, difficulty might imply something about oneself or about the object under consideration, yielding different patterns of behavior.

Responses to persuasion attempts

Culture-as-situated-cognition theory makes a number of predictions about how people will respond to persuasion attempts. First, superficial cues are more likely to be persuasive, if the persuasive attempt occurs while people are experiencing cultural fluency. Second, what constitutes a high-quality argument should depend on the nodes central to activated culturally-rooted associative knowledge networks. Third, accessible culturally-rooted associative knowledge networks should focus attention on some cues and not others.

In culturally fluent situations in which observation seems to match implicit expectations, processing can remain shallow. Cultural disfluency, on the other hand, will increase scrutiny of arguments and decrease reliance on peripheral cues. Since experienced cultural disfluency is a

problem signal, disfluency should focus attention on argument quality. Culturally-relevant cues require attention and care, so quality of persuasive argument matters; in contrast, culturally-irrelevant cues can be ignored. The implication is that persuasive arguments using culturally-irrelevant cues pass by unnoticed or are shallowly processed. Although focus on the interface between persuasion and cultural fluency and disfluency is just emerging, a number of studies support this line of reasoning as detailed next.

Cultural fluency increases persuasiveness of superficial cues

First, with regard to superficial cues and shallow processing, Mourey and colleagues (2015) randomly assigned participants to a culturally fluent or disfluent experience and then showed them a product and asked how much they were willing to pay for it. Shallow processing was all that was possible: the only information was a photograph and brief description, and the products on offer (a shovel, a phone charger keychain) were irrelevant to the specific culturally-rooted associative knowledge network brought to mind by the prior task. Shallow processing seemed sufficient in the fluent, compared to the disfluent conditions. Willingness to pay for a shovel was higher for people who had just seen photographs of a bride in white, a groom in black, and a tiered white wedding cake compared to those who had just seen a bride in green, a groom in purple, and a tiered wedding cake decorated with colorful cogs. Willingness to pay for a phone charger keychain was higher for people who had just read sad obituaries compared to people who had just read happy obituaries. The consumption context in each of these studies implies approach (do you want this?) and so shallow processing yields approach behavior.

A cultural fluency perspective implies that people will ‘go with the flow’ whether context implies approach (take this!) or avoidance (do not take this!). Support for this prediction that avoidance can be the culturally fluent thing to do comes from the studies of Yamagishi, Hashimoto, and colleagues (Hashimoto et al., 2011; Yamagishi et al., 2008). They demonstrated that a culturally fluent understanding of what a ‘go with the flow’ response would be can lead to either approach or avoidance behaviors among both Americans and Asians.

Second, with regard to central cues and elaborated processing, experienced cultural disfluency, a problem signal, should focus attention on argument quality. We did not find studies testing this prediction directly. However, we found what we consider to be indirect evidence of the hypothesized effect. For example, three studies by Briñol, Petty, and Wheeler (2006) find that people experiencing a larger discrepancy between their implicit and explicit self-concepts were more sensitive to argument strength than were people experiencing smaller discrepancies. We interpret this result to mean that when the world is as expected (implicit and explicit self-concepts overlap), one does not need to process deeply. In contrast, error detection (implicit and explicit self-concepts differ) requires more elaborated processing. A direct test of this prediction is clearly needed to test whether cultural disfluency triggers attention to argument quality as culture-as-situated cognition theory predicts.

Cultural fluency influences what constitutes a high-quality argument

Culture-as-situated-cognition theory predicts that processing is situated. This means that what constitutes a high-quality argument (a central persuasion cue) depends on the activated culturally-rooted associative knowledge network. A cue will be experienced as central if it is central to the activated culturally-rooted knowledge network. The same cue will be experienced as peripheral if it is peripheral to the activated culturally-rooted associative knowledge network. So for example, a cue that might be central to an activated honor associative knowledge network

might be peripheral to an activated individualistic associative knowledge network. A central cue should be required for persuasion to occur under conditions of cultural disfluency – then a high quality argument is needed; in contrast, under conditions of cultural fluency, a peripheral cue should be sufficient.

We did not find research testing this prediction directly. However, we did find illustrative research (Shavitt, Swan, Lowrey, & Wänke, 1994; Shavitt, this volume). Based on this research, we predict that an accessible culturally-rooted associative knowledge network influences whether a persuasion cue is experienced as peripheral or central. Consider what might happen if an honor vs. an individualistic knowledge network was accessible. If an ‘honor’ knowledge network is accessible, then image (e.g., endorser attractiveness) may be a central persuasion cue in part because one’s image in the eyes of others is part of the knowledge network. If so, then when an honor knowledge network is accessible and the situation is disfluent, then endorser attractiveness should matter while one’s own sensory experience should not and might undermine persuasion attempts. In contrast, if an ‘individualistic’ knowledge network is accessible, then image (endorser attractiveness) might be a shallow cue while one’s own sensory experience might be central in part because one’s own internal experiences are part of the knowledge network. If so, then when an individualistic knowledge network is accessible and the situation is disfluent, then one’s sensory experience should matter while endorser attractiveness should not and might undermine persuasion attempts

Cultural fluency focuses attention on some cues and not on others

Finally, culture-as-situated cognition theory predicts that accessible culturally-rooted associative knowledge networks focus attention on some cues and not others. Culturally-relevant cues require attention and care and hence, quality of persuasive argument matters. Culturally-irrelevant cues will either go unnoticed or will be processed shallowly. In order for people to be motivated to centrally process an argument in the first place, the topic must feel relevant to them. Relevancy should be affected by accessible culturally-rooted associative knowledge networks. Once a cue is experienced as relevant, it will be processed and may or may not yield the intended persuasive effect.

First, consider what a collectivistic knowledge network includes. In addition to content, it includes procedures and goals related to finding and maintaining connections and relationships. That means that once activated, people will be sensitive to connection and relationship cues. Indeed, in a series of studies, Mourey, Yoon, and Oyserman (2013) showed that when researchers activate a collectivistic knowledge network, people process even unrelated products as if they were sets: They are willing to pay more to keep a set even if the set was constructed on the spot; they notice more connections among objects; they are unwilling to keep part of a ‘broken’ set even if the set was just constructed.

In one study, Mourey and colleagues (2013) offered participants a snack and a drink and after participants had chosen one of each, they learned they could only have one (a snack or a drink, not both). In another study, participants chose two puppies for a friend who wanted two, only to learn that the lease only allowed for one. In a third study, participants made choices of cellphone chargers, cases, and earbuds only to learn that some of their choices were not available. In each of these studies, participants were asked how they would like to proceed. Participants in the condition in which a collectivistic knowledge network was activated were more likely to act as if the chosen snack and drink was a unit. They were quite ingenious in seeing sets, reporting things like “I chose Coke and a cookie, both begin with the letter C!” If

they could not have their full set, they preferred to go back to the original list and choose something else – ending up with a snack or a drink that was neither of their initial top choices. If researchers activated an individualistic knowledge network, participants were more likely to act as if they had chosen the best snack from the snack list and the best drink from the drink list as two separate choices. Hence, if they could not have both, these participants were more likely to take one of their top choices (the top drink or top snack) rather than going back to the list to choose a snack or drink that had not been their top choice. This same pattern applied to puppies and cell phone accessories.

Kwon, Saluja, and Adaval (2015) took this insight that a collectivistic knowledge network includes a connecting ‘set making’ mental procedure into the domain of persuasion. When Kwon and colleagues activated a collectivistic knowledge network, participants cared about the fit between elements of a persuasion attempt. In this case, participants acted as if the elements of a persuasion attempt were supposed to be a set and so used the fit between elements as a persuasion cue. In contrast, when Kwon and colleagues activated an individualistic knowledge network, participants did not seem to process elements of the persuasion attempt using a ‘set making’ mental procedure. Just as in the snack studies (Mourey et al., 2013), participants in Kwon and colleagues’ individualistic mindset condition processed each cue separately.

Though none of these studies directly tested cultural fluency and disfluency, we operationalize the culturally fluent response in these studies as using the procedure in the activated cultural mindset – it felt right. A set making procedure was activated in the collectivistic mindset condition so people used a set making procedure. The task did not necessarily require this procedure but people in the collectivistic mindset condition used this culturally fluent procedure even though it resulted in forgoing top choices for lesser ones once the top choices were considered as if they formulated a set. The Kwon and colleagues (2016) studies, allow for a more direct test of the implications of cultural fluency for persuasion. People in the collectivistic mindset condition used the set making procedure and tried to process the photo and text as a set, when photo and text did not fit well together, they were less persuaded and when they did fit together well they were more persuaded. A set making procedure was not on mind for people in the individualistic mindset condition; hence whether or not the photo and text fit well together had no bearing on persuasion.

Mindful and mindless action

Culture-as-situated-cognition theory makes a number of predictions about how cultural fluency and disfluency will influence the likelihood of engaging in mindless and mindful action. First, people will be more likely to go with the flow -- approach when contexts cue approach and avoid when contexts cue avoidance under conditions of cultural fluency. Second, this effect should be limited to situations in which experienced fluency (ease) and disfluency (difficulty) are interpreted as being about the context itself rather than as being about the self. As we described in the section on well-being, if experienced fluency and disfluency is taken to imply something about the self, then cultural disfluency is depleting, yielding a sense of *perhaps I am not competent*.

Cultural fluency and disfluency and contextual cues of approach or avoidance

Cultural fluency is likely to increase the chance that people will ‘go with the flow.’ Depending on whether the context cues approach or avoidance, ‘going with the flow’ can either mean ‘keep going’ or ‘stop.’ Although studies that show this effect with avoidance situations have not yet been conducted, this is what we find in situations that cue approach. In a series of experiments, Mourey, Lam and Oyserman (2015) set up conditions of cultural fluency and disfluency and showed that people interpret their downstream metacognitive experiences of ease or difficulty as informative of whether to keep going. They devised approach situations (picnics, buffets) and found that American picnickers and Hong Kong Chinese buffet-goers loaded more food on their plates when they were randomly assigned to receive a culturally fluent plate rather than a neutral plate. In contrast, these picnickers and buffet-goers loaded less food on their plates when they were randomly assigned to receive a culturally disfluent plate rather than a neutral plate. For example, during a 4th of July picnic, picnickers with stars-and-stripes decorated plates loaded on average 25% more food (in weight) on their plates than picnickers with plain white plates. During a Labor Day picnic, picnickers with a bats-and-pumpkins-decorated plate loaded on average with 18% less food (in weight) than picnickers with plain white plates. During Chinese New Year buffet-goers with red-bordered plates loaded 18% more food (in portion size) on their plates than buffet-goers with black-bordered plates. They also loaded larger portions on their plates than buffet-goers after Chinese New Year -- 24% to 29% more. After Chinese New Year, the color of plate border was no longer a fluency signal. Across studies, when plate decorations were culturally fluent, the metacognitive experience of ease triggered ‘going with the flow’ --loading up plates in an approach setting in which eating is expected. Cultural fluency emerged from the match between plate and immediate context (the holiday was happening) and was not a fixed feature of the plate itself.

Cultural fluency and disfluency and the self

We next consider situations in which cultural fluency and disfluency is experienced as having implications for the self. Culture-as-situated cognition theory predicts that people will infer from prediction error that something about the situation requires attention unless they have reason to infer that prediction error is due to their own deficiencies. If they infer that prediction error is due to their own deficiencies, they should experience reduced sense of efficacy and competence. We did not find research directly testing this prediction but did find indirect support in a series of experiments by Koo and colleagues (2011a, 2011b). Evidence is indirect because Koo and colleagues did not activate a culturally-rooted associative knowledge network. They randomly assigned European American and Asian participants to use either an attentional style associated with collectivism (pay attention to background) or an attentional style associated with individualism (focus on pieces). Using a culture-as-situated cognition lens yields the hypothesis that the fluent procedure will be the one on the mind – the one associated with momentarily cued or chronically accessible cultural mindset. The accessible procedure is the one people will use unless they are told to use a different procedure. Often that is all that there is, people are not alerted to an alternative and simply use the on-the-mind procedure even if another one might better serve them. Sometimes people are alerted to a mismatch between their implicit prediction (“The mental procedure on my mind is the right one to use!”) and the unfolding situation (“I was told to use a different mental procedure!”). This yields disfluency. The consequence of this disfluency depends on which direction the specific situation draws attention to. The experimental context Koo and colleagues created led participants to interpret this difficulty as being about

themselves. After completing the task, participants were asked to focus on themselves. Participants rated themselves as having less self-control if they were randomized to conditions in which prediction error was likely—being asked to use a mental procedure without an a priori cue that it would be requested. Interpretation of what prediction error implied for the self mattered: Participants in the prediction error conditions ate more of the offered snacks, evaluated a tempting chocolate bar more positively than a healthy multi-grain bar, and preferred a familiar easy choice to an unfamiliar one that would require more thinking. This was true for Asians asked to use the ‘focus on pieces’ attentional style (associated with individualism) and for European Americans asked to use the ‘pay attention to background’ attentional style (associated with collectivism). Though not tested, presumably, higher subsequent self-control would be found for participants primed with individualism and given the focus on pieces instruction and for participants primed with collectivism and given the pay attention to background instructions.

Understanding process: Are violations culturally fluent or culturally disfluent?

Relevant associative networks must exist

Whether a given cue is likely to generate a prediction error depends on whether a relevant culturally-rooted associative knowledge network exists (is available) and on whether it is activated (accessible). If a culturally-rooted associative knowledge network doesn't exist, then it cannot generate predictions or an experience of cultural fluency or disfluency. For example, Mourey and colleagues (2015) had small-town Midwestern European American participants choose foods from a Chinese buffet. Unbeknownst to participants, they were randomly assigned to plate color and the amount of food they chose was being measured. Half received a white plate with a red border. The other half received a white plate with a black border. The study took place during Chinese New Year. Plate border did not affect experienced cultural fluency among these small-town Midwestern American participants for whom the culturally-rooted associative knowledge network connecting 'Chinese New Year' and 'red' did not exist. When asked, they reported not knowing when Chinese New Year is or anything about how to celebrate it. In this study, the knowledge network was not available for use.

Cues interact probabilistically with situations

Even if a culturally-rooted associative knowledge network is available (exists in memory), a particular cue may or may not activate it. Whether a particular culturally-rooted associative knowledge network is activated is affected by the centrality of a cue to the network and features of the immediate situation. Some cues are more central to a culturally-rooted associative knowledge network than other cues and some situations call attention to a culturally-rooted associative knowledge network. Central cues and attention-calling situations should have more robust effects than peripheral cues and subtle situations.

Figure 4 juxtaposes peripheral (top panel color) versus central (bottom panel Valentine's Day cards) Valentine's Day cue manipulations. Lin and colleagues (2017a) manipulated cultural fluency of Valentine's Day using a central cue: Valentine's Day cards. The cards were adorned either with hearts (fluent) or skulls (disfluent). Examples from their study are shown in the bottom row of Figure 4. Even in the disfluent cases, the cards were unambiguously for

Valentine's Day card, just with an unexpected feature. As predicted, the Valentine's Day skulls-patterned cards created a robust experience of disfluency --it was found both during Valentine's Day and a month later (Lin et al., 2017a).

In contrast, peripheral cues require situational support to become relevant. For example, the color of the border on a printed questionnaire is presumably a peripheral cue. However, a peripheral cue may trigger feelings of cultural fluency or disfluency when the associative knowledge network is activated. For example, on Valentine's Day a pink-bordered questionnaire might be experienced as particularly fluent, whereas a black-bordered questionnaire would not be; whereas when it is not Valentine's Day, pink and black are just colors. To test this prediction, Mourey and colleagues (2015) asked participants to complete a Cognitive Reflections Test. Half of participants were asked on Valentine's Day and half were asked a week later. At each point in time, half of participants received the CRT with a pink border and half with a black border or no border at all. On Valentine's Day, the pink presumably felt fluent, indeed, participants in the pink-border condition were less likely to apply rules in solving the problems compared to participants in the black-bordered or no border condition. A week after Valentine's Day, pink was just a color, no more or less fluent than black or no border. Indeed, participants in all conditions were just as likely to apply rules in solving problems as participants in the disfluent conditions on Valentine's Day. Similarly, the cultural fluency effects that Mourey and colleagues (2015) showed among Chinese participants using red-bordered plates during Chinese New Year disappeared after Chinese New Year.



Figure 4. Examples of Valentine's Day fluency manipulations used by Mourey et al. (2015; top row—manipulation of a relatively peripheral cue) and Lin et al. (2017a; bottom row—manipulation of a more central cue). On the left, are images displaying the relatively culturally fluent conditions, and on the right are images displaying the relatively culturally disfluent conditions. For the manipulation illustrated in the top row (the pink vs. black border), the pink border

yielded an experience of cultural fluency only when the experiment was conducted on Valentine's Day; for the manipulation illustrated in the bottom row (the hearts vs. the skull patterns), the skulls yielded an experience of cultural disfluency whether or not the experiment was conducted on Valentine's Day.

Multiple associative knowledge networks could be cued

People have available to them many culturally-rooted associative knowledge networks. Features of the situations influence which of these available networks is on the mind. Imagine looking at a series of wedding photographs. In one's own culture, the event 'a wedding' would likely be perceptually salient, activating a 'wedding' culturally-rooted associative knowledge network. In the U.S., the activated network generates an automatic prediction: "the bride will wear a white gown". If observation matches prediction, people likely experience cultural fluency. If observation mismatches prediction: "the bridal gown is not white!" people likely experience cultural disfluency. Indeed, white is a plausible automatic prediction in China as well. Wedding photographs depicting a bride in white yielded cultural fluency while a bride in unexpected color gowns –green or black, yielded cultural disfluency in both the U.S. and China (Lin et al., 2017a; Mourey et al., 2015). Outside of one's culture, cues are less likely to be read as transmitted, so not only are prediction errors more likely, but also mismatch of prediction to observation is less likely to be experienced as cultural disfluency. For example, Americans may fail to recognize that the photograph in Figure 5 on the right is of a Nigerian wedding since their 'wedding' culturally-rooted associative knowledge network is less likely to be activated. Failing to predict that this is a wedding yields an error signal if informed that it is a wedding, but not otherwise. Learning that an error occurred reduces certainty in one's ability to predict what is a wedding outside one's culture but is unlikely to undermine certainty in one's ability to predict within one's culture.

Even within one's own culture 'wedding' is not the only associative knowledge network that might be cued. If other unique features are perceptually more salient, other associative knowledge networks are likely to be activated. In these cases, the color of the bridal gown may no longer feature in prediction. For example, for Jews, in addition to the colors of the bride and groom's attire, a Jewish wedding implies icons of Jewish tradition (standing under a canopy, a kippah on the groom's head). Consider the left half of Figure 5. The wedding depicted is part of a Jewish Israeli wedding in Israel yet it includes so many unique features that the activated knowledge networks may be about other things. Activated networks may include: "Victorian" or "themed parties" or "new experiences" or "times I have traveled" or "people I know from different places." Hence, while on the surface, this wedding might appear to be culturally disfluent, if the interpretive lens is not 'wedding' then mismatch to prediction may not occur and hence neither will it evoke cultural disfluency or its downstream consequences.



Figure 5. Jewish couple holding a themed wedding (left image from <http://urbanbridesmag.co.il/%D7%97%D7%AA%D7%95%D7%A0%D7%95%D7%AA-%D7%90%D7%95%D7%A8%D7%91%D7%A0%D7%99%D7%95%D7%AA/%D7%A2%D7%A0%D7%AA-%D7%95%D7%99%D7%A0%D7%99%D7%91-19-2-14.html>). Nigerian wedding (right image from Instagram user @klalaphotography). These images may activate alternative associative knowledge networks (e.g., Victorian themes on the left, love on the right) since other cues are dominant.

Prediction error is culturally disfluent violation of expectation: Rule-breaking may be predicted

While cultural disfluency studies have focused on prediction error, prediction error is not the same as rule breaking. Culturally-rooted associative knowledge networks should yield predictions about when norms, practices, and rules are likely to be violated. People expect thieves to steal, addicts to consume the object of their addiction, and suspicious characters to cheat. If the predicted rule breaking is subsequently observed, people should experience cultural fluency and their subsequent confidence in their predictions should increase. Culturally-rooted associative knowledge networks include relevant knowledge of what the rules are, what rule breaking means, when rules are likely to be broken, and who is likely to break rules. Two studies, reported in Oyserman (2012) provide evidence for this prediction. In one study, participants were Hong Kong Chinese and the broken rule involved eating on the Hong Kong metro system, a finable offense. In the other study, participants were Mormons and the broken rule involved experiencing addictive dependence, breaking a tenet of Mormonism to avoid addiction to any substance that could alter the health or strength of one's body or mind. In the metro system study, Hong Kong Chinese participants were asked to imagine a fellow metro rider looking around furtively and then either pulling out a lunch and eating or pulling out a book and reading. In the addictive dependence study, Mormon participants were asked to imagine a fellow Mormon addicted to buttery croissants and unable to go a single morning without eating one or two. In both cases, the set up of the situation led to a clear prediction of rule breaking. Reading that a rule was broken yielded cultural fluency—this led to worse performance on the CRT. In

contrast, cultural disfluency ensued for participants expecting a rule to be broken but then seeing that it was not (e.g., after furtively looking around, the metro rider pulled out a book and read)—this led to better performance on the CRT.

Summary

Culture-as-situated-cognition theory predicts that people have available, but not necessarily simultaneously accessible, a large number of culturally-rooted associative knowledge networks. People use their accessible culturally-rooted associative knowledge networks to make automatic, implicit (not necessarily conscious) predictions about how situations will unfold. Because people are expert in their own cultures, what unfolds is typically experienced as a match with prediction, yielding a metacognitive experience of ease. This experience does not have to be interpreted but often is and what it implies depends on what is the momentary focus of attention - the situation, the self, or something else. It could mean that the situation is safe and requires no further attention, that the world is as it should be, that one is competent and knows how the world works, that one can just go with the flow, that the choice one is about to make is the correct one. In contrast, mismatch between implicit prediction and observation yields a metacognitive experience of difficulty. This experience does not have to be interpreted but often is and what it implies also depends what is the momentary focus of attention. It could mean that the situation is risky or dangerous and requires further attention, that the world may not be as it should be, that one is not particularly competent and does not really know how the world works, that one has to consider which rules apply, that the choice one is about to make may not be the correct one. How people interpret their metacognitive experience of difficulty matters; difficulty might imply something about oneself, the action itself, or about the situation.

Hence *whether* ease or difficulty is experienced and *how* experienced ease or difficulty is (explicitly or implicitly) interpreted both matter. Whether ease or difficulty is experienced depends in part on which associative knowledge network is cued and the context in which it is cued. Because of spreading activation in associative knowledge networks, effects are probabilistic rather than certain. While experienced ease does not require action, experienced difficulty does. We predict that over time, an accumulation of experienced ease matters, increasing self-certainty and well-being; an accumulation of experienced difficulty undermines both.

We summarized evidence of downstream consequences of cultural fluency and disfluency for thinking, feeling and doing. With regard to thinking, we addressed two literatures, the existing literature on cultural mindsets and the emerging literature on cultural fluency. The cultural mindset literature shows that people use the mental procedures that are part of accessible culturally-rooted associative knowledge networks to solve problems at hand. This can help or hinder performance depending on whether the accessible mental procedure (e.g., analytic, holistic) matches or mismatches the task at hand. We interpret these well-documented effects in light of cultural fluency and disfluency: Using the activated mental procedure feels fluent and hence is applied whether it helps or hinders performance. The exception is situations in which task instructions call for a particular procedure, then the procedure itself will be used whether or not it feels fluent and how people interpret their experienced difficulty will depend on what their attention is drawn to – themselves or the situation. Then we turned to the question of how experiences of cultural fluency and disfluency influence information processing generally. We predicted that cultural fluency is the default experience and hence people will use associative

reasoning whether or not that style is the best match to the task at hand, unless they are made to experience cultural disfluency, which should turn on systematic rule-based reasoning. Whether the default associative ‘go with your gut’ reasoning style or systematic ‘use a rule’ reasoning style is the better reasoning style to use depends on features of the task. Whether performance improves or is undermined by cultural fluency and disfluency depends on the match between the task and the cued reasoning style and is not a main effect of fluency or disfluency.

With regard to feeling, we found no evidence of an explicit immediate affective response to culturally fluent or disfluent experiences, but did find some indirect effects through product ratings and did find effects on feelings of inherece. Compared to cultural fluency, cultural disfluency reduces experienced inherece (the feeling that all's right with the world). We also found indirect evidence for effects of chronic cultural disfluency on well-being, life satisfaction, and self-regard; ongoing gaps between expectation and observation undermine well-being, life satisfaction and self-certainty. Further research is needed to better understand the role of feelings in cultural fluency; this research might productively examine implicit and other indirect measures.

Finally with regard to taking action, culture-as-situated cognition theory predicts that the effect of persuasion attempts and contextual cues on behavior depends on activated culturally-rooted associative knowledge networks and on how people interpret the experienced ease or difficulty resulting from a match or mismatch between automatic implicit prediction and observation. Indeed, the activated culturally-rooted associative knowledge network influences which features people pay attention to. A match or mismatch between observation and culturally-rooted implicit prediction influences whether people pay attention to argument quality. Whether experienced cultural fluency and disfluency results in more or less mindful behavior depends on whether experienced ease and difficulty are interpreted as being about features of the situation or about features of oneself.

A cultural fluency and disfluency perspective sheds light on how culture functions as a meaning-making system. Each culture is unique and cultural expertise involves a large set of culturally-rooted associative knowledge networks that include a richly detailed set of goals and mental procedures. These networks are not limited to ‘individualistic’, ‘collectivistic’ or ‘honor’ mindsets. As social beings, people are sensitive to situational cues; even minor contextual cues can activate different culturally-rooted associative knowledge networks. People are influenced by how they (implicitly or explicitly) interpret the match and mismatch between what accessible culturally-rooted associative knowledge networks lead them to implicitly expect and how situations unfold. Effects require that a knowledge network be accessible at the moment of judgment, not merely available in memory, and effects can occur even when people do not endorse accessible norms, beliefs, practices or goals. By demonstrating these effects, we solve a puzzle that arises from between-group comparison models of culture that focus on differences in cultural mindsets or identities. The puzzle is that while these differences exist, small situational cues are often sufficient to change seemingly deeply rooted patterns of behavior in ways that are not predicted by a between-group difference approach.

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