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**The Dual Route to Value Change:
Individual Processes and Cultural Moderators**

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Abstract

Understanding value stability and change is essential for understanding values of both individuals and cultures. Yet, theoretical thinking and empirical evidence on this topic have been scarce. In this paper we suggest a model outlining processes of individual value change. This model proposes that value change can occur through automatic and effortful routes. We identify five facilitators of value change (priming, adaptation, identification, consistency maintenance, and direct persuasion), and consider the moderating role of culture in each. In addition, we discuss the roles of culture, personal values, and traits as general moderators of value change. Evidence on the structure of value change and the effects of age on value change are also reviewed.

Values are usually viewed as “relatively stable” (e.g., Rokeach, 1973, p. 11). Although the word *relatively* implies that values can change, the emphasis in the psychological literature has been on value stability, resulting with little theoretical thought and empirical research on value change (see also Hitlin & Piliavin, 2004). Indeed, some of the literature reports only minimal change in values (e.g., Feather, 1975; Lubinski, Schmidt, & Benbow, 1996; Schwartz, 2005). Yet other empirical evidence suggests that individual values can change more substantially (e.g., Kohn & Schooler, 1982; Rokeach, 1973; Sheldon, 2005). Hence, it is important to consider value change in a theoretical manner that might stimulate empirical research. The current paper proposes a model of such change. We begin by introducing values and defining value change. We address methodological issues in studying this topic. We then propose a model of value change and consider facilitators of value change; the structure of value change; and moderators to the process of value change including culture, personal values, and personality traits.

Values

We introduce values focusing on value characteristics used later in this article. Values convey what is important to people in their life (e.g., achievement, security). They guide perception, goals, attitudes, and behavior (reviewed, e.g., in Bardi, Calogero, & Mullen, 2008; Maio, 2010; Roccas & Sagiv, 2010). Hence, values serve as motivators, similarly to needs (e.g., Schwartz, 2004). They are ordered in a personal hierarchy of importance, and the location of a value in that hierarchy determines perception and behavior (e.g., Rokeach, 1973; Schwartz, 1992).

As suggested by many (e.g., Kluckhohn, 1951; Meglino & Ravlin, 1998; Rokeach, 1973; Schwartz, 1992), values probably develop as a joint product of the individual’s needs, traits, temperament, culture, socialization, and personal experiences (see supporting evidence, e.g., in Calogero, Bardi, & Sutton, 2009; Knafo et al., 2008; Kohn & Schooler, 1982; Roccas

et al., 2002; Schwartz, 2004; Verkasalo, Goodwin & Bezmenova, 2006). Unlike needs and to some extent also traits, there is an element of choice in values (Roccas et al., 2002). That is, people may actively decide how important certain values are to them.

Values are viewed as central aspects of the self (e.g., Brewer & Roccas, 2001; Rokeach, 1973), and hence are expected to be less amenable to change than attitudes and needs (see, e.g., Konty & Dunham, 1997). Maio (2010) views them as mental representations and Schwartz and Bilsky (1987) defined them as cognitive structures (beliefs) that can be retrieved from memory when needed. Hence, people know what their values are and they can be measured directly by asking people to rate their importance. This is similar to the understanding of attitudes. Still, values may often operate without consciousness (Schwartz, 1996). For example, people may behave according to their values without being consciously aware of the motivating force of their values at the time of action (see Bardi & Schwartz, 2003).

Types of Value Change and their Assessment

We employ a phenomenological definition of value change, based on the notion above that people know what their values are, hence values can be measured by asking people directly to rate their values. We therefore define *value change* as a change in the importance of a value, evident in a change in the rating or ranking of a value on a questionnaire. This can be a short-term (temporary) change, such as in the response to an experimental manipulation, or a long-term change.

Drawing on work in personality change (see, e.g., Biesanz, West, & Kwok, 2003; Caspi, Roberts, & Shiner, 2005), it is possible to address different types of changes in values, mainly mean level changes and intra-individual changes. *Mean level changes* in values refer to changes in the average value importance in a population. For example, Hofmann-Towfigh (2007) has found in a longitudinal study with adolescents in Germany that power and

achievement values became more important whereas benevolence and universalism values became less important over the course of a school year. Such research designs are typically analyzed by ANOVA, regression, or structural equation modeling, depending on the research question. If they are conducted over a number of times of assessment they can be analyzed using hierarchical linear modeling and growth curve models (see detailed explanation in Biesanz et al., 2003).

A weaker but still somewhat valid design for studying mean level changes in values is the comparison of values of matched samples across times. For example, Verkasalo et al. (2006) compared the values of matched groups of Finnish school children and university students before and after the 9/11 attacks. They found an increase in the importance of security values and a decrease in the importance of stimulation values in the aftermath of the attacks. Most of the research on value change has been done using matched samples.

Mean level changes in values as a function of age have also been studied by correlating age with values (Schwartz, 2005). Yet, a threat to internal validity in this design is the possibility that age differences in values may be a result of societal events that have occurred at some points in time (e.g., wars) and have affected the values of a certain cohort (see more detailed discussion in Schwartz, 2005). Hence, the observed age differences may not reflect age *per se* but cohort differences.

A second type of value change is *intra-individual change* (also termed rank order change/stability). This type of change refers to individual differences in value change, creating changes in the rank order of individuals on the importance of a certain value. For example, if the importance of achievement values increases for some and decreases for others, then the order of participants on a continuum of these values changes. This type of change is often analyzed by longitudinal correlations (test-retest), and may also be analyzed using intra-class correlations. However, caution should be used in interpreting these

correlations, as they are influenced by the internal reliabilities of the value indexes. Values typically differ in their internal reliabilities. For example, in the Schwartz Value Survey (Schwartz, 1992) universalism values tend to have relatively high internal reliabilities whereas tradition values tend to have relatively low internal reliabilities (see Schwartz, 2005). Hence, a high longitudinal correlation of universalism values compared with a lower longitudinal correlation of tradition values may simply stem from their differences in internal reliability.

It is also possible to consider both types of change in the same analysis. Biesanz et al. (2003) explain how to conduct such statistical analyses. This possibility has never been employed in research on value change.

Forces that Foster Value Stability and Proposed Routes to Value Change

Janoff-Bulman (1989) conceptualized world-views and their change in terms of schemas and schema change. Building on his ideas, we suggest that value change can be understood in a similar way. Specifically, as values are cognitive structures that function as central aspects of the self, they can be understood as central schemas with an over-arching effect on perceptions, goals, attitudes, and behaviors (see also Feather, 1975; Hitlin & Piliavin, 2004). Central schemas are generally resistant to change because people tend to forget events that are incongruent with their schemas, remember better events that are congruent with their schemas, and reinterpret events to fit their existing schemas (see reviews in, e.g., Cooper & Shallice, 2006; Janoff-Bulman, 1989). Therefore, values are likely to be generally resistant to change. Moreover, it has been suggested that values often operate as ‘truisms’ (Maio & Olson, 1998). That is, people often hold values that they do not think about in depth. As they do not devote much thought to their values, they do not normally challenge their values, rendering values as stable by default.

Still, previous research suggests that values do change sometimes. How might this happen? The rationalization above implies that value change involves schema change. Similarly to the understanding of attitude change (Chaiken, Liberman, & Eagly, 1989; Petty & Cacioppo, 1986), value change may result from both automatic and effortful processing. We next outline the routes we suggest to value change, illustrated in Figure 1. We suggest two main routes to value change – an automatic route and an effortful route. We separate between processes that lead to the initial value change (phase 1 in the figure) and processes that lead to long-term value change (phase 2 in the figure). Paths with dashed lines indicate routes that occur only under certain conditions, as we explicate below. Facilitators to each route are portrayed in dashed boxes with arrows that point to the routes through which they operate.

Routes to Initial Value Change (Phase 1)

Figure 1 presents the model we propose for value change. As values are stable by default, we suggest that an event might start the process of change. Hence, the process of value change is likely to start with environmental cues, represented in the figure by an oval to distinguish this external event from all other events in the figure. Environmental cues can either automatically prime certain values without much awareness to the prime, or they can bring to awareness a challenge to the existing values.

The automatic route to initial value change. Building on the idea of values as schemas and the spreading activation model (Collins & Loftus, 1975), certain environmental features may be associated in memory with certain values (e.g., the English language may be associated with individualistic values). An environmental cue (e.g., hearing English) may prime a certain schema thereby leading to a response to the event using this schema. This primed schema may include values that the individual does not hold as particularly important (e.g., individualistic values), but at the time of activation these values may affect response to

the event due to the activation of the schema. To illustrate, a newcomer from a collectivistic culture who recently arrived to an individualistic country is offered by her local flat mate to go to a pampering spa. As the offer is communicated in the local language, it automatically activates individualistic values such as hedonism rather than security values that would lead to considerations of costs. This automatically strengthens the links of schemas that include hedonism values. The automaticity of this process enables initial value change, because the potential for resistance to value change is minor.

The effortful route to initial value change. Environmental cues may directly invoke thinking about values. This may lead people to challenge their values, re-evaluate their importance, and as a result possibly change them. Hence, this route to value change involves awareness and effortful processing. Maio and Olson (1998) indeed found that making people elaborate on the reasons for their values induces value change. This effect was later established in many experiments (reviewed in Maio, 2010).¹ However, values that were held with established cognitive support did not change, as people were able to elicit counter arguments for the value-change messages (see Maio, 2010). Because in this route people are aware of the possibility of value change they may resist this change and therefore prevent it. Thus, challenging values may be a pre-requisite for the effortful route to value change but is not sufficient. Moreover, value challenging may not always lead to thinking about the value, as people may reject the value-challenge message immediately. This may happen if challenging the value poses a great threat to the individual (such as challenging tradition values for an extremely devout person). Therefore, this path in Figure 1 is portrayed as a dashed line to indicate a route that occurs only under certain conditions.

In Maio's (2010) research, participants are typically asked to write reasons for their values, and this brings values to awareness, causing people to actively challenge their values. In real life, such value challenging may occur as a result of a direct value message such as in

the media, in education, or coming from any other socialization agent (parents, peers, etc). To illustrate, Krishnan (2008) suggested that the university MBA program conveys an application-oriented approach that could challenge students' existing values. And indeed, two longitudinal studies following MBA students throughout their studies revealed an increase in self-enhancement values and a decrease in self-transcendence (pro-social) values (Krishnan, 2008).

The literature on attitude change suggests that direct persuasion messages often result in resistance (reviewed in Aronson, 1999). With regard to values, there is likely to be even more resistance than with attitudes, because values are more central to the self-concept (see Brewer & Roccas, 2001; Rokeach, 1973). For this reason, we believe that most of the value change is not due to direct persuasion attempts. More successful ways in which the effortful route to value change may operate are outlined below in discussing facilitators of value change.

From the automatic to the effortful route to initial value change. As can be seen in Figure 1, the automatic priming of a value may result in actively thinking about the value. This may happen if the cue is very strong or occurs repeatedly. It may increase the salience of the value to such an extent that would cause awareness of the value (for various levels of automaticity see Bargh, 1994). For example, a cultural prime such as role expectations may lead to actively thinking about the implications of such role expectations to one's core values. Such contemplation may result in value change. Hence, a process that started as automatic may continue with awareness leading to an effortful route to value change.

Routes to Long-Term Value Change (Phase 2)

So far we have addressed routes to initial value change. However, the resistance of schemas to change implies that such initial change is likely to be temporary. Because people do not normally think about their values they should typically operate quite automatically in

affecting perception and behavior. Thus, even if a single event replaced the value schema with another schema in interpreting an event, later on central schemas (embedding personally important values) are still likely to exert the main effects on perception and behavior.

A similar process is likely to occur for the effortful route resulting from a direct challenging of values. Specifically, any single event might challenge values once causing a temporary change in values. But as life goes on and people do not constantly think about their values, the original values are likely to continue to operate in affecting perception and behavior. Hence, the default might be a temporary change in values. Still, research suggests that longer term changes in values do occur sometimes. Therefore, we outline below possible ways by which the automatic and the effortful routes to value change may operate in preserving the initial value change and thereby creating long-term change.

The automatic route to preserving initial value change. We propose that for a value to change permanently through automatic schema change, primes leading to the same alternative schema need to operate repeatedly, gradually strengthening the links of the schema to other schemas, until the alternative schema becomes central and therefore quite dominant in affecting perception and behavior. Using the example of language and values, when a person moves to a new country the same cultural primes of the new culture (e.g., language) occur on a daily basis, thereby strengthening links of the initially weak schema related to values of the new culture. This in turn can lead to value change.

The effortful route to preserving initial value change. For a challenge in values to change values permanently, values need to be challenged repeatedly in the same direction. After the initial effortful processing and initial value change, these similar challenges may remind the person about the previous conclusion of value change. With every reminder the value schema is likely to be strengthened until it gradually becomes stronger than the previous schema, resulting in long-term value change.

On occasion, one event of value challenging may be sufficient to cause permanent change in values. This could be when the initial value-challenging event has led to much thought, including relating the value to different life situations thereby strengthening the schema, resulting in deep conviction. Hence, when the person is later reminded of the value, he or she may remember the arguments for the value and his or her new view on it. This could happen after a long discussion with others regarding the value, as part of a social gathering or as part of an intervention program (at schools, as part of socialization to an organization, etc.).

A comparison of the proposed model to dual route models of attitude change. Our model is similar to two well-known models of attitude change, namely the elaboration likelihood model that suggests the central vs. peripheral routes to attitude change (Petty & Cacioppo, 1986) and the heuristic-systematic model of persuasion (e.g., Chaiken et al., 1989). The systematic (or central) route to attitude change is parallel to our effortful route to value change, as both require conscious effortful processing of relevant information in order to make a decision regarding the attitude or the importance of the value. The heuristic (or peripheral) route to attitude change is similar to our automatic route to value change in that they both involve primarily automatic processing. However, in the heuristic (or peripheral) routes to attitude change people attend to peripheral aspects of the persuasion message (such as attractiveness of the message conveyer) whereas in the automatic route to value change the actual value is activated by environmental cues.

For theoretical clarity, we have discussed the automatic and the effortful routes separately. Yet in practice, both processes might occur concurrently as we specify below. In addition, each person may experience some value change through the automatic route and

some through the effortful route. We elaborate on these ideas further as part of discussing processes of value change instigated by specific facilitators of change.

Facilitators of Value Change

We review five facilitators suggested in the literature as instigating value change: priming, adaptation, identification, consistency maintenance, and direct persuasion attempts. Last, we discuss age, not as a value-change facilitator per se, but as a factor affecting the time in which value changes are more probable. At the end of addressing each facilitator we suggest possible ways in which culture may moderate the processes linked with each facilitator. We end this section with suggestions for general moderators of value change including culture and individual differences in values and traits. Each of these facilitators may affect both intra-individual value change and mean-level value change. Specifically, if the process occurs only in some individuals, intra-individual value change is likely to occur. However, if the process occurs in the same way for an entire group of people (e.g., most immigrants change values in the same direction) mean level changes will be observed.

Priming Processes

We proposed that automatic schema change is likely to occur through repeated priming of an alternative schema (see Figure 1). An example is in research on priming individualism and collectivism. In a laboratory experiment, American and Chinese participants engaged in a task focused on thinking in terms of 'I' or 'we' and were presented with a story in which a person made a decision based on considerations of achievement (reflecting individualistic values) or family obligations (reflecting collectivistic values) (Gardner, Gabriel, & Lee, 1999). Participants then completed the Schwartz Value Survey (SVS; Schwartz, 1992). These primes led to higher mean-level importance of individualistic values in participants who were primed with an individualistic mind-set and higher mean-

level importance of collectivistic values in participants who were primed with a collectivistic mind-set.

According to Bond and Yang (1982), language can prime culture, as well. And indeed, the mean-level effect reported above was also achieved by simply completing the SVS in different languages. Specifically, Chinese participants fluent in English who completed the SVS in English prioritized individualistic values more than those who completed the SVS in Chinese (Ralston, Cunniff, & Gustafson, 1995).

Research on biculturalism is also informative here. Hong, Morris, Chiu, and Benet-Martínez (2000) suggested that biculturals (individuals who identify with two cultures) have two alternative interpretative schemas that reflect the two cultures they identify with. They found that environmental cues that symbolise one culture lead to interpretations that correspond with this culture, thus implying that cultural cues can activate the interpretative schema of this culture. Cultural environmental cues can be blatant, such as flags and language, or more subtle, such as role expectations (Benet-Martínez, Lee, & Leu, 2006).

Priming effects on values are not limited to priming culture. In a recent experiment, asking students in the UK to think about what it would be like to have a child resulted in greater mean-level importance of self-transcendence values (Maio, Karremans, Leygue, Gebauer, & Webb, 2008).

These studies demonstrate a temporary change in values as a result of priming. Do these findings challenge the existence of a generally stable value system? The studies reported above used between-subject designs, hence it is impossible to assess before-after within-person change in values. Yet, studies on bicultural individuals have found that although self-reports of personality traits shifted according to cultural primes, participants' rank order stability remained high (Ramirez-Esparza, Gosling, Benet-Martínez, Potter, & Pennebaker, 2006). As was found with regard to personality (e.g., Fleeson, Malanos, &

Achille, 2002), it may be more useful to think of the value system as intra-individually variable around a mean with some individuals potentially less variable around their personal mean and others showing more variability around the mean. With this rationalization, it may be that biculturals tend to be relatively more variable around the mean as they may shift their value importance more readily as a result of priming cultural cues.

Changes in value importance as a result of a prime occurring once, however, are likely to be temporary. Yet if the same concept is primed repeatedly by a new life situation (e.g., parenthood) or by the environment (e.g., a new culture) a more permanent change in values may take place. This process may explain how biculturals may have acquired alternative interpretative schemas that correspond to their two internalized cultures, whereas monoculturals have only one dominant interpretative schema related to culture (see above).

The moderation of culture. Would it make sense to expect cultural variation on the strength of the effect of this facilitator? Priming has been found to operate both in individualistic and in collectivistic cultures (see Gardner et al, 1999). Hence, we may expect that this facilitator would operate similarly across cultures.

Adaptation

Rohan (2000) suggested that life changes are likely to lead to value change. How might this happen? Life changes are accompanied by the occurrence of new environmental cues, such as a baby crying in the case of parenthood, or a new language in the case of moving country. We suggest that adaptation to new life situations leads to value change both through the automatic and the effortful routes.

With regard to the automatic route, we outlined above the implication that research into priming values has on value change as part of adapting to living in a new country and adapting to parenthood. The same process (with different values) may occur when one enters another new life situation, such as a new role at work, or a new organization.

A new life situation may also challenge the person's values, as previous values may not be adaptive in the new context. Hence, pursuit of important values may be frustrated, making these values salient and bringing them to awareness. This is likely to lead people to think about their values, which may cause value change through the effortful route. As this happens repeatedly, the person may reconsider holding this value and perhaps reduce its importance. In this context, Schwartz and Bardi (1997) suggested that people adapt their values to reinforcement contingencies in the environment. That is, people are likely to downgrade the importance of values that cannot be pursued, and they are likely to endorse values that are encouraged in their social environment (see also Schwartz, 2005). And indeed, Kohn and Schooler (1982) found in a longitudinal study that employees whose job conditions required self-directed work showed mean-level increase in self-directed orientation ten years later. Similarly, Danis, Liu, and Vacek (in press) found that inter-generational increase in openness to change values from before to after the communist regimes in the Czech Republic, and this change was attributed to the need for openness to change in post-communist work environments. Returning to the example of the acculturating individual, rewards in a new culture may emphasize individual rather than collective outcomes (emphasizing, for example, achievement values), thereby rendering individualistic values more adaptive.

Schwartz and Bardi (1997) also suggested that this process of downgrading the importance of values that cannot be pursued is not likely to occur for all values. Some values are likely to be based on Maslow's (1954) deficit needs (Bilsky & Schwartz, 1994). This is particularly true for security values. For these values, inability to fulfill them would not cause their abandonment. On the contrary, it would create greater need that would lead to an increase in the importance of security.

This process may occur through both the automatic and the effortful routes to value change, as illustrated in Figure 1. With regard to the automatic route, deficiency in fulfilling security needs is likely to prime security and lead to the interpretation of situations in terms of security. This, in turn, may gradually increase the importance of security values. Yet this process of constantly interpreting situations in terms of security may also bring security values into awareness, challenge the previously lower importance of security values and further aid the increase of their importance. Accordingly, mean level increases in the importance of security values as a result of reduced security were documented following the Oklahoma terrorist bombing in the US (Frink, Rose, & Carty, 2004), the 9/11 attacks (Verkasalo et al., 2006), and the bombing at the London underground in July 2005 (Goodwin & Gaines, 2009).

The basic idea that changes in life situations are likely to result in value change has been supported in a 2-years longitudinal study using the general population in Australia (Bardi, Lee, Hoffman-Towfigh, & Soutar (2009). The extent of life changing events that participants experienced during the two-year period was positively associated with greater overall intra-individual value change. Regarding a specific life change, Ferriman, Lubinski, and Benbow (2009) found that the expected gender differences in values have become more pronounced after participants became parents, possibly as a result of adapting to their new life role.

The moderation of culture. Adaptation seems to be a basic process that has been found across cultures (e.g., Inglehart, 2003). Hence, we expect this factor to operate similarly across cultures.

Identification

It has been suggested that values develop partly through identification (see Kasser, Ryan, Zax, & Sameroff, 1995). Gecas (2000) proposed that important social identities

become internalized in the individual as values. Similarly, values may change as a result of changes in identification. For example, when a person enters a new group (work-group, new culture, etc.) identifying with this new group may result in value change towards the group's values (e.g., Mael & Ashforth, 1992). This can happen through a combination of the automatic and the effortful routes to value change (see Figure 1). Specifically, if people in the new group frequently interpret events using the same values, the new member might adopt these interpretations of events as a result of identifying with the group. In other words, the new member would start using the same alternative schema to interpret events, eventually resulting in the replacement of the old values with the new values. In addition, communication within the group might make the new value salient, and cause the new member to think about this value, challenge it, and possibly change its importance. Indeed, Chatman (1991) found value change in new employees as a result of spending time with mentors at work. The process of value change through identification with a new ingroup has been related to processes of acculturation, such as assimilation and integration (e.g., Olmeda, 1979).

The moderation of culture. Identification may be a weaker facilitator in individualistic cultures, compared to collectivistic cultures, because of the lower level of inter-dependency in individualistic cultures (see Markus & Kitayama, 1991).

Consistency Maintenance

According to Rokeach (1973), people should be motivated to resolve inconsistencies in their self-concept, partly through changing their values. This idea stems from principles of cognitive dissonance (Festinger, 1957) with an additional emphasis on self-dissatisfaction that results from recognizing inconsistencies in the self-concept.

Based on these ideas, Rokeach (1968) developed an intervention of value change, verified in many studies (reviewed in Rokeach, 1968, 1973). In this intervention, people first

rank their values according to personal importance. They then receive an interpretation of their ranking that puts them in a negative light (for example, as being selfish). This is likely to be inconsistent with their view of themselves. It induces self-dissatisfaction which results in value change. The extent of value change induced by this intervention was not affected by a variety of seemingly relevant factors, such as perceived validity of the information presented in the manipulation and acceptance of the interpretation to one's own values (Rokeach, 1973). Hence, it seems that while this intervention operates through the effortful route of value challenging, it also initiates automatic processes of change.

This process is similar to self-persuasion processes in attitude change, which also rely on principles of cognitive dissonance (see, e.g., Aronson, 1999). The basic paradigm of self-persuasion in the attitude change literature is to ask participants to write a counter-attitudinal essay or prepare a counter-attitudinal speech. The idea is that people persuade themselves that the attitude they have expressed publicly is their true attitude, in order to avoid cognitive dissonance due to the inconsistency between the expressed and held attitude. Unlike the process in Rokeach's (1968) intervention, in this process people do not think that they are changing their values. Rather, they 'realize' that they hold the relevant value with a different priority than they originally thought. This can be seen as a process of meta-cognition in which people engage in cognitions about their cognitions (see Wegener & Carlston, 2005). Self-persuasion processes in value change have been tested successfully in a recent series of studies (Grant & Sagiv, 2009).

A related process based on the motivation to maintain consistency is proposed by self-perception theory (Bem, 1967). According to this theory, people observe their behavior and conclude that they hold the reflected attitude. This suggests that consistent change in behavior can result in value change through observation of one's own behavior. Such a process can occur as a combination of the automatic and effortful routes to value change. Self-observation

of behavior may prime a behavior-consistent schema in which the expressed value is embedded, which over time replaces the original schema of the values thereby causing value change. Regarding the effortful route to value change, violations of internal consistencies between values and behavior may make the value salient. This would reduce its ‘truism’ status and cause the person to think about the violated value. Recurrent behavior might later be justified in terms of the value that is directly expressed in this behavior, leading to value change (for the role of values as justifications of behaviors see Kristiansen & Zanna, 1994; Schwartz, 1992).

This process from behavior to values can help explain changes in values due to adaptation to new situations. A new life situation requires new behavior, (for example, the laws or social-norms of a new country, behavior required by a new life role like becoming a parent), or by a new position at work (e.g., becoming a manager). Therefore, this suggested process may also contribute to the internalization of norms.

Partly based on consistency maintenance, the links between values and related variables (traits, needs, goals, and attitudes) imply that, in general, we should expect that change in these related variables would lead to change in values and vice versa.

The moderation of culture. Consistency between behavior and internal attributes (such as values) has been found to be weaker in collectivistic cultures than in individualistic cultures (e.g., Heine & Lehman, 1997, 1999). Thus, internal consistency may be a weaker force in value change in collectivistic cultures. In addition, with regard to the threat to positive self-concept in Rokeach's (1968) intervention, in collectivistic cultures a positive self-concept built on individual attributes may be less important (e.g., Heine, 2003). In contrast, elements of the self-concept important to one's group or relationships are very important, potentially acting as powerful driving forces for this intervention in collectivistic cultures (see, e.g., Heine & Lehman, 1997).

Direct Persuasion Attempts

Perhaps the most obvious facilitator of value change is direct persuasion attempts, such as media messages, education programs, and programs of value socialization in organizations (reviewed in Chatard & Selimbegovic, 2007; Saks & Ashforth, 1997). These attempts are likely to induce value change through the effortful route (see Figure 1) as they would mainly operate by encouraging thinking about a new value. However, as stated above, the effortful route may also induce reactance. This has been found with regard to attitude change (e.g., reviewed in Aronson, 1999) but it is likely to occur even more strongly with regard to values, given that values are more central aspects of the self-concept. Similar to the findings regarding attitude change (see, e.g., Chaiken et al., 1989), attempts to change values are more likely to succeed for values that are weak in the self-concept (i.e., the person does not have a strong opinion on them), or for values that are already quite important, with the persuasion attempt strengthening these further.

The moderation of culture. Direct attempts at persuasion may be more successful in hierarchical cultures in which conforming to authority is more important. Hence an education program at school or at one's organization may be viewed as a legitimate source of values. Such direct attempts may also be successful in collectivistic cultures in which the group is more important than the individual (see also Chatard & Selimbegovic, 2007). In collectivistic cultures the individual may be persuaded as part of their identification with the group. In contrast, in individualistic cultures and cultures that emphasize intellectual autonomy (see Schwartz, 2004), people are encouraged to think independently. To the extent that individuals are aware of such interventions, they may object to attempts to influence their thoughts in such settings.

Age

Is it plausible to expect more value change in certain age groups than others? In the basic literature on life span development adolescence is considered a time of considerable change, undergoing biological, cognitive, and social transitions (e.g., Steinberg, 2008), possibly including value change. Yet there is very little research on values in adolescence, with the youngest ages studied typically young adults. Bardi and Schwartz (1996) have suggested that greater value change should be expected in young compared to older adults because the value system of older adults is already strongly crystallized, has many connections to other cognitions, and is therefore more difficult to change. In other words, the values of older adults are likely to be embedded in stronger and more centralized schemas.

Indeed, in samples of East European citizens collected within a few years of the end of the communist regimes, effects of the communist regimes were clearly evident in samples of teachers but were much weaker in the younger student samples (Bardi & Schwartz, 1996). Similarly, there is evidence from Japan that younger males are significantly more individualistic than their older counterparts (see Matsumoto, Kudoh, & Takeuchi, 1996). And in the immigration context, young immigrants seemed to adopt the host culture's values more readily compared with older immigrants (Marín, Sabogal, Marín, Oter-Sabogal, & Perez-Stable, 1987). An analysis of cohort studies in sociology has also concluded that there is greater value change in younger than in older adults (Konty & Dunham, 1997). Yet, as discussed above, it is important to remember that value differences between cohorts could reflect cohort differences rather than value change within persons.

Unlike the conclusions from cohort differences in values, in a longitudinal study on the general population measuring value change over two years, the correlation between age and overall value change was only marginal in significance, and was weaker than the effect of having to adapt to new life situations, suggesting that the need to adapt to new life circumstances is a more important factor in value change than age (Bardi et al., 2009). This

finding converges with evidence that changes in personality traits can occur at any age, and are understood as resulting from crucial life changes that require adaptation (Roberts & Mroczek, 2008).

The findings on trait changes imply another way in which age might serve as a facilitator of value change. Specifically, age may affect value change as part of the need to adapt to different life circumstances that are typical to certain ages (Schwartz, 2005). For example, achievement values may be more adaptive in early adulthood when people build their career and less important later in life, particularly after retirement. Hence, the importance of achievement values may decline with age, as Schwartz expected and found by correlating values with age in a cross-sectional study.

Current knowledge on trait changes with age may also help to derive hypotheses regarding value-changes with age. This is because traits are likely to affect values through the justification of traits with values (Roccas et al., 2002). Building on the knowledge on links between traits and values (Roccas et al., 2002) one may expect values related to traits to show the same change trajectories throughout the life span as traits. For example, across cultures, levels of the trait openness to experience tend to decrease from adolescence to adulthood (McCrae et al., 2004). Therefore, it is plausible to expect that openness to change values which are positively associated with trait openness (Roccas et al., 2002) would also decrease in importance from adolescence to adulthood.

Similarly, because values are viewed as partly based on needs, one can hypothesize on age-related value change that would result from age-related changes in needs. For example, one might expect that the need for security increases with age and particularly towards late adulthood when the likelihood for health risks increases. As a result, it is plausible to expect that security values would increase in importance. Schwartz (2005) indeed expected and found a positive correlation between age and valuing security.

General Moderators of Value Change: Culture, Personal Values, and Traits

So far we have addressed the potential of culture to moderate value change induced by specific facilitators of change. However, it is also possible to think about culture as a general moderator of value change. That is, should we expect more value change, in general, in certain cultures compared to others? Similarly, it is possible to consider personal values, and traits as general moderators of any change in ideas, beliefs, attitudes, and values. We consider two general directions of moderators –change tendency and preservation tendency.

Change tendency. Some cultures and individuals are more open to the possibility of change. These include cultures that are high on the cultural dimensions of uncertainty avoidance (e.g., Hofstede, 2001), mastery, and intellectual and affective autonomy (Schwartz, 2004). On the individual level, those who value openness to change (self-direction and stimulation values, Schwartz, 1992) and are high on the trait of openness to experience (e.g., McCrae & Costa, 1997) are more open to the possibility of change. All of these individuals and cultures may have a greater tendency for value change. However, these cultural dimensions (particularly intellectual autonomy), personal values (particularly self-direction), and traits also include a tendency for independent thought. The implication for value change would be that people from such cultures or with such values and traits are open to the possibility of change, but only if they feel that they have independently chosen the new value and after being convinced as a result of independent thought. Hence, although they are open to change, they may be more resistant to direct attempts to change their values.

Cultures that encourage change may also facilitate value change indirectly. Their encouragement of change implies that institutions and policies in such cultures may change more readily, people may change jobs and places of residence more often, and friendship networks and marital status may be less stable. All these environmental changes are likely to create new life situations that require adaptation, partly through value change. Similarly,

individuals with the corresponding values and traits are likely to introduce more changes to their lives (e.g., change jobs and relationships more readily) leading to a greater need to adapt to new life situations partly by changing values.

Preservation tendency. Certain cultures and individuals are likely to be more resistant to change. These include cultures high on the dimensions of embeddedness (Schwartz, 2004) due to their emphasis on tradition and those high on the dimension of hierarchy (Schwartz, 2004) due to rigid societal hierarchical structure likely to hamper opportunities for social mobility and change. Similarly, people who value conservation (Schwartz, 1992) are motivated to leave things as they are. However, these cultural dimensions and personal values also entail deference to authority and to the ingroup. Hence, when value change is initiated by a higher place of authority or by the ingroup such people are more likely to change their values.

The Structure of Value Change

What is likely to be the structure of value change? Would we expect values to change in isolation with one another or to change in an interdependent way, such that change in one value would result with changes in other values? Values exist as a system (e.g., Rokeach, 1973; Schwartz, 1992). Hence, it is reasonable to expect that their change would not occur in isolation. Rokeach (1973) emphasized values as organized in a hierarchy. As a result, he maintained that any change in one value would lead to change in the hierarchy of the values, such that if one value becomes more important, other values become less important.

Bardi et al. (2009) and Maio et al. (2009) have suggested that Schwartz's (1992) rationalization for the circumplex-like structure of values can also apply to the structure of value change. That is, an increase in the importance of any one value should be accompanied by similar increases in compatible values and by decreases in the importance of conflicting values in order to maintain a coherent system of values. Bardi et al (2009) found empirical

support for this suggestion in four longitudinal studies spanning three Western countries. Similar effects have been shown in laboratory experiments in the UK using a version of Rokeach's (1968) value change intervention (Maio et al., 2009). Similarly, asking students to think about having a child resulted with stronger self-transcendence values and weaker self-enhancement values (Maio et al., 2008). Finally, longitudinal studies in India found mean level increases in the importance of self-enhancement values accompanied by decreases in self-transcendence values over the course of two years in students of management (Krishnan, 2008). Hence the data available so far suggests that when values change, they change in an organized manner that mirrors the structure of values.

Conclusions

Although values have become a major topic of interest for cross-cultural psychologists in recent years, there has been little systematic analysis of how values might change over time, and the mechanisms that might underlie such change. In this paper, we argue that, contrary to prevalent assumptions, there is evidence of predictable value change. Building on work on attitude change and biculturalism, we proposed two routes to value change, one automatic and one effortful. We identified a series of facilitators of such change. These include priming processes, adaptation, identification, consistency maintenance, and direct persuasion. We also considered the impact of age and culture in value change processes, and related these processes to individual traits and needs.

We defined value change as a change in the importance scores on a value questionnaire. Is this reflective of real value change? A change in value scores on a questionnaire could merely be the result of momentary response biases, possibly as a result of acute accessibility of values that were manipulated in an experiment. However, we argue that at the particular moment of completing the value questionnaire the participant's experiences

are reflected in holding the relevant value with a changed level of importance. In the participant's mind, at that moment, the value importance has changed. Hence this is a phenomenological way of defining value change. Instead of treating such value change as unreal we treat it as temporary. The same process that has led to this apparent change in values on the questionnaire may occur in real life and affect long-term value change if it occurs repeatedly. For example, changing values as a result of language change might have caused only a temporary change in values in the reported experiment (Ralston et al., 1995, discussed above), but the same process occurs repeatedly in the real life of immigrants. Therefore, such laboratory experiments can inform real-life processes of value change.

Studying value change is not easy. A long-term commitment is required for longitudinal studies. Populations also need to be carefully selected -- most studies rely heavily on student populations, but such selective populations may be rather sheltered from effects of societal changes that might lead to the greatest changes in values. One promising method that overcomes these technical difficulties might be the use of archival texts such as newspapers. Recent studies have indeed documented meaningful value change in societies using such methods (e.g., Bardi et al, 2008; Nafstad, Blakar, Carlquist, Phelps, & Rand-Hendriksen, 2007).

Despite the difficulties often posed by research into value change, we contend that understanding such change has a number of important implications. At the individual level, value change may be an important driver of behavior change. In cross-cultural research, investigators often build their studies on expectations of value differences between cultures, relying on the assumption that values are stable. Hence, it is important to document value change and understand what stimulates it.

In conclusion, we argue that the study of value change is an important topic of research for those engaged in both intra-cultural and cross-cultural studies. While researching

this area is not simple, such work offers important theoretical advances. Therefore, we urge investigators to study value change as a major topic for inclusion in their research.

¹ We note, however, that this effect has only been studied in individualistic cultures; hence its cross-cultural robustness awaits support.

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Figure Caption

Figure 1. Proposed model of value change.

