Special Thematic Section on "Societal Change"

Broadening the Scope of Societal Change Research: Psychological, Cultural, and Political Impacts of Development Aid

Nina Hansen*[a], Tom Postmes[a]

[a] Department of Social Psychology, University of Groningen, Groningen, The Netherlands.

Abstract

To date, the study of societal change in social and political psychology has been dominated by an intergroup relations research agenda. But in addition to intergroup dynamics, there are other major pathways to societal change and emancipation, which are almost never systematically considered in psychological research. The distribution of technologies (e.g., "ICT for development") or money (e.g., microcredits) are among the supposed drivers of societal change. Many development aid projects are anchored in expectations about the effect that such instruments have on anticipated primary goals and the emancipation of particular groups (such as women). In the current paper, we begin by reviewing theories in the field of social change. Social psychological theories mainly address the conditions under which social change stimulated by intergroup dynamics is likely to occur, while other mainly historical and sociological research has focused on the role of different technologies as drivers of social change in history. Next, we review recent research focusing on the anticipated primary goals and (often) unanticipated psychological and cultural changes resulting from development aid interventions, presenting two examples of such interventions in Ethiopia and Sri Lanka in more detail. We suggest that (1) development aid projects can instigate profound psychological and cultural change and (2) that the pathways to such changes are markedly different from those traditionally examined in the literature. At the political level, we reflect on the unanticipated side effects of development aid. We conclude with some recommendations for practice following from the research described.

Keywords: societal change, social change, culture, technology, modernization, development aid, laptop, microfinance, developing nations

If we follow the daily news reports on societal changes around the world, we may get the impression that intergroup conflict is a key driver of societal change. Citizens, for example, oppose their governments or fight for human rights and freedom in general, or for particular group rights for women, homosexual people or other disadvantaged groups. Across countries people protest against the power of financial institutions and support actions against undisclosed programmes to monitor telephone and internet traffic. All these examples illustrate that people engage in protest and struggles to effect significant alterations in cultural values, norms, and intergroup relations. These

pathways are the main focus of the social psychological literature in the field of social movements and they are conventionally understood as social struggles propelled by intergroup dynamics in which one group opposes the power of another group and challenges the status quo (for an overview see van Zomeren & Iyer, 2009).

But in addition to intergroup dynamics, there are other major pathways to societal change and emancipation that are, to date, not systematically considered in psychological research. There are many possible causes for social relations to change. The adoption of technologies (e.g., the stirrup, telephone, information communication technology [ICT] for development) is one such potential driver of societal change. The distribution of money (e.g., microcredits) is another. Many Western projects of development aid are anchored in somewhat utopian expectations of the effect that such 'modern' innovations would have on their anticipated primary goals (e.g., improved educational outcomes) and the emancipation of particular groups (such as women). These 'modern' innovations are based on the assumption that they should stimulate sustainable development in these countries. For example, laptop programs for students aim at improving students' educational outcomes and future prospects. However, is that indeed the case? What are the (often) unanticipated side effects? What are the societal changes that can happen but that are often not primarily envisioned by intervention designers? This paper sets out to reflect on the psychological, social, and cultural impacts that such 'modern' innovations have. More precisely, we first provide an overview of political and social psychological theories in the field of social change and review each theory's contribution to our understanding of social change and the underlying processes. Second, we summarize research findings that examine social changes driven by technologies that illustrate how social change has occurred in history. Next, we specifically focus on the anticipated and often unanticipated side effects of psychological and cultural changes that modern innovations, introduced through development aid interventions, may have. Third, based on these reviews we argue that the pathways to such changes driven by modern innovations are markedly different from those traditionally examined in the social psychological literature in the field of intergroup relations (e.g., conflict and social movements).

Societal Change

Theories of Social Change

The theme of this special section relates to change at the level of society, an aggregate of people living together in a more or less ordered community. In other words, societal changes refer to alterations in the way people live together, such as changes in institutions, structure, and relations within a given society. In his early work in 1893, Durkheim first introduced the "collective or common consciousness" referring to the way in which "the totality of beliefs and sentiments common to the average members of a society forms a determinate system with a life of its own" (Durkheim,1893/1997, p. 39). This citation illustrates the social aspect of a society, the beliefs and sentiments that its members hold. As mentioned above, a society has a social order and the term social change refers to an alteration in the social order of a society. Previous research has defined and investigated different forces such as the introduction of technologies that drive social changes in values, norms, attitudes, and behaviour (e.g., Inglehart, 1997; Inglehart & Baker, 2000). In order to account for social changes, theories of social change should make predictions about (1) the (structural) conditions under which change occurs or does not occur, (2) the underlying processes of such change, and (3) the outcomes of such change. This includes, for example, how the introduction of one piece of modern technology changes which values (i.e., guiding principles, such as personal achievement or religious requirements) become more or less important in people's lives. Researchers from polit-

ical sciences and social psychology have developed different theories to account for social change. In the following we provide an overview of the relevant theories in the field, describe their main assumptions, and most importantly analyze each theory based on the three above mentioned criteria: (1) conditions, (2) underlying processes, and (3) outcomes of social change[i]. A pathway of social change refers to the sequence through which one specific condition leads to social change. We explicate the pathways of social change[ii] suggested by existing theories.

In political science and sociology, *modernization theory* has been developed since the 1950's (e.g., Inglehart, 1997; Inglehart & Baker, 2000; Lerner, 1958). This macro-theory has been developed in mainly large-scale historical research investigating the effects of the modernization process on social change at national/societal levels. Modernization is the process through which the activities of a more traditional culture are aligned with the activities, institutions, and tools of industrialized nations (Inkeles & Smith, 1974). By comparing different nations, political scientists have shown that modernization and economic development (conceptualized as industrialization, rationalization, structural differentiation or political development) are associated with the adoption of values that are increasingly tolerant, rational, trusting, and participatory (e.g., Inglehart, 1997; Inglehart & Baker, 2000). At the same time, distinctive cultural traditions such as following religious requirements are persistent and do not seem to erode that quickly. Since modernization deals with societal change from agrarian societies to industrial ones, it is important to look at the technological drivers of change. This line of research has identified new technologies as a major source of societal change. Importantly, new technologies do not change societies by themselves. Rather, it is the response to technology that causes change. According to Giddens (1991), traditional societies are based on direct interaction between people living close to each other. In contrast, modern societies are based on new communication technologies such as mass media and interactive media that stretch further across space and time and change how people interact. To conclude, modernization theory predicts that if industrialization sets in it will foster social changes such as changes in attitudes, values, or behaviour. More precisely, the adoption of technologies is a key driver of change towards more tolerant, rational, trusting, and participatory values as mentioned above. However, modernization theory is a macro-theory and accordingly the majority of research in this field has focused on macro-level data in the form of cross-country comparisons and longitudinal analyses (e.g., Inglehart, 1997; Inglehart & Baker, 2000). Evidence about the mechanisms of *how* new technologies foster micro-level societal change has not been provided in this line of research.

In social psychology, by contrast, theories tend to focus on the micro-level processes making *individuals* strive for social change. At this level of analysis, the focus tends to be on the particular set of structural conditions that encourages the individual to engage in social action (e.g., conflict or by mobilizing for protest). The assumption in theories of social movements (e.g., van Zomeren, Postmes, & Spears, 2008), for example, appears to be that if individuals gear up for action, social change is likely to happen some way down the line. Similarly, the assumption is that if people do not engage in social movements, the status quo will remain unchanged. We first review theories which are based on these assumptions and afterwards we review theories which explain the status quo.

One key theory that focuses on competition for limited resources between groups is *realistic group conflict theory* (RGCT; Campbell, 1965; Sherif, 1966). This theory looks at the structural conditions, outside the individual, that give rise to antagonistic intergroup relations. Thus, it focusses on the development of intergroup conflict. When groups perceive incompatible goals and competition over valuable resources that are of material (e.g., food, land, or money) or of symbolic nature (e.g., power or status), they are likely to enter into competition; and antagonism is likely to rise. However, when there is no negative interdependence over such valuable resources, groups cooperate, and exist in harmony. Thus, based on this theory, predictions can (1) only be derived about the conditions

under which an intergroup conflict may arise, namely when there is negative interdependence over valuable resources, but (2) not about underlying mechanisms or (3) outcomes of social change.

Another well-known social psychological theory to explain social change is *social identity theory* (SIT; Tajfel & Turner, 1979, 1986; for an overview see Postmes & Branscombe, 2010). This theory proposes that, when acting in groups, we define ourselves in terms of our group membership (through social identity) and seek to positively distinguish our group relative to other groups. According to social identity theory there are three major factors that influence whether people seek social change or not. The first factor is the perception of status *stability*. This perception refers to the intergroup status relation between low and high status groups. Social identity suggests that if the low status of an ingroup relative to an outgroup is stable, lower-status group members are likely to engage in action. This is related to the second factor, which is *permeability*. If there is a chance of individual advancement in society (because group boundaries are permeable), members of lower-status groups may begin to disidentify with the group to try to join the higher-status group (social mobility). If permeability is low, low-status group members engage in social creativity, for example behaviours aimed at redefining the social value of their group. The third factor is *legitimacy*. Social identity theory suggests that if people perceive the low status of their ingroup as stable, the situation of their low status group as illegitimate, and if they can envisage other ways of organizing society (i.e., there are cognitive alternatives to the status quo), people will act collectively to challenge the status quo and bring about social change based on the combination of these three factors. Thus, the primary formulation of SIT (Tajfel & Turner, 1979) focused almost exclusively on (1) the structural conditions whether social change is likely to arise or not, (2) the processes by which low status groups strive for social change or not, but (3) not directly on outcomes of social change. Only recently have scholars begun applying these processes systematically to high status groups (e.g., Haslam, 2001; Postmes & Smith, 2009), suggesting that high status groups oppress others when facing relative gratification as well when facing relative deprivation (Postmes & Smith, 2009) and show higher levels of prejudice compared to low status groups (e.g., Guimond, Dambrun, Michinov, & Duarte, 2003).

Contemporary offspring of social identity theory focus on social psychological variables that predict mobilization for action. These variables partially echo those contained in SIT. For example, the *social identity model of collective action* (SIMCA; van Zomeren et al., 2008) proposes that collective action intentions and collective action are predicted by three proximate variables: social identification with the ingroup, a sense of collective injustice, and perceived efficacy of the action. Stronger feelings of social identification, collective injustice, and group-based efficacy to make change happen increase the likelihood that people will engage in collective action. This micro-level theory extends previous research by suggesting a combined effect of these three psychological variables in shaping whether disadvantaged groups strive for social change or not.

But social psychology does not just harbor theories that seek to explain conflict and change: there are also theories seeking to understand their absence. According to theories such as *system justification theory* (SJT; Jost & Banaji, 1994) and *social dominance theory* (SDT; Sidanius & Pratto, 1999), societies and people have inbuilt mechanisms that preserve the status quo. According to SJT, people have an intrinsic need to see the social system they live in as just and fair: they will accordingly act to preserve the system. According to SDT, people tend to value and maintain group-based hierarchies. This theory assumes that group-based hierarchies are reinforced by legitimizing myths that postulate how status and power should be distributed among different groups. These legitimizing myths can take one of two different forms. On the one hand, they can be hierarchy-enhancing, such that they promote social inequality. Sexism, racism, and nationalism are examples of myths that justify group-based domination.

On the other hand, they can be hierarchy-attenuating, such that they promote social equality. Multiculturalism, socialism, and beliefs in human rights are examples of myths that work against the maintenance of inequality in society. To conclude, both theories specify mechanisms that maintain status differences and the status quo, but do not offer any explanations as to the conditions under which social change may occur (however, see Pratto, Stewart, & Bou Zeineddine, 2013, this section).

In all these theories the overriding assumption is that social change stems from an intergroup dynamic or even intergroup conflict. Social dominance theory and system justification theory attribute the maintenance of the status quo to an absence of conflict. Realistic group conflict theory, social identity theory, and the social identity model of collective action assume that the status quo will change due to intergroup dynamics or even conflict. Accordingly, the study of social change in social psychology has focused on the view that intergroup relations (i.e., conflict), protest and collective action are key to understanding change (for overviews see van Zomeren & Iyer, 2009; van Zomeren et al., 2008). The social psychological factors which motivate individuals to engage in collective action are in the foreground of the analysis. Collective action and mobilization might in turn result in social change and emancipation. However, the precise outcomes of social change are not specified by these theories.

In sum, only one theory, namely modernization theory, focuses on social change as an outcome but tends to offer little understanding and explanation of the underlying processes of this change. In contrast, realistic group conflict theory, social identity theory, and the social identity model of collective action offer a richer understanding and explanation of the underlying processes of intergroup relations in general. However, they do not study social change as an outcome. The intergroup dynamics or even conflicts may in turn trigger social change. Thus, these theories suggest that the key pathway to social change is driven by intergroup dynamics or conflicts between groups leading to protest and collective action resulting in social change, the precise form of which is not specified.

Social Change Driven by Technologies

Within the last centuries dramatic societal changes have occurred in, for example, social life, the division of work, or communication. However, these changes cannot only be accounted for by the above-mentioned social psychological theories of social change in the field of intergroup dynamics, except (in a very generic sense) by modernization theory. In this section we will take a closer look at some major social changes that have occurred over past centuries. As outlined above, intergroup strife can be a major factor in change processes. In addition, historical and sociological analyses suggest that technology is another prime driver of social change (e.g., Cowan, 1976, 1997; Giddens, 1991; White, 1962; Zuboff, 1988). There are many cases in which technology caused shifts in social relations (e.g., by causing changing occupational demands, increasing mobility or changing communication patterns). Although occasionally this may lead to intergroup conflict, many of the changes caused by technology play out through social dynamics between individuals, rather than those between groups. In the following we outline different theories and examples that illustrate how technologies have driven social change to develop a more comprehensive account for possible pathways of social change.

Taking Marxist theory (e.g., Marx, 1867) as an example, there is broad consensus surrounding its analysis of how certain material conditions may give rise to social structures (e.g., the industrial revolution creating the conditions for urbanization, the creation of a working class, and so on). Thus, there is broad consensus that technological innovations have changed society in dramatic ways. However, the Marxist analysis of how these societal and relational changes would propel people to revolt has proven to be less deterministic. Even though the social structure was established, people often did not revolt. We also have to acknowledge that over the last century social

movements have stimulated social change: the rise of trade unions, social movements more generally, and the unprecedented extension of suffrage in the same period (Tilly & Wood, 2012). Our point here is not so much that intergroup relations would be irrelevant or uninteresting (far from it!) but rather, that the lack of interest in the adoption of technology as the driver of social change is an omission that is important to correct.

In disciplines other than social and political psychology, there are some landmark studies of social change in Western societies that have underscored the importance of technology adoption in change processes. One classic case is the rise of the feudal system in the 8th century Frankish kingdom. This was a turbulent time characterized by the invasion of mainland Europe by Muslim armies, and their repulsion by the Franks, led by Charles Martel, at the battle of Poitiers (732). According to many historians, the feudal system arose as a result of these outside threats. Indeed, various historians have argued that these social cleavages resulted when the new and expensive method of fighting on horseback led to the growth of a specialized aristocracy of mounted warriors (e.g., White, 1962, p. 15, for a review). But on closer inspection, these social changes appear to have been preceded by technological innovation. White (1962) argues that "it was the Franks … who fully grasped the possibilities inherent in the stirrup and created in terms of it a new type of warfare supported by a novel structure of society which we call feudalism" (p. 28). This technical innovation of using stirrups for "mounted shock combat", in other words, instigated the rise of feudalism in the context of outside threats. It was the interaction of technology adoption and social conditions which led to mass change. As White (1962) observes, other turbulent societies (such as the Saxons) that did not realize the novel potential of the stirrup for mounted combat, but continued to use horses for transport as they had done for centuries, did not witness similar social changes.

This may be an early example of technology adoption interacting with existing social conditions to produce social change, but it is a pattern observed more regularly throughout history. Agricultural innovations in Great Britain from the 16th–18th century played a key role in freeing up labour to sustain the industrial revolution at the start of the 19th century. In social terms, there were social changes in settlement patterns, occupational structure, role division, and so on. The industrial revolution, in turn, was filled with innovations that had their own impact on social life. Transport technology (railroads, shipping) increased mobility in many parts of Europe, and made the emergence of the nation state a practical possibility (Landes, 2003). Communication technology (telegraph, telephone, the rotary press in combination with mass production of paper) fuelled powerful new industries centered on the exchange of news and information at the national and international level (e.g., Cowan, 1997). Finally, the 20th century is replete with examples of technology adoption fuelling social change: the mechanization of household chores, for example, massively reduced the need for household staff, again freeing up labour for industry (e.g., Cowan, 1997). The introduction of the motorcar is credited with changing residential patterns (suburbanization in the USA; McShane, 1995). Radio and television are perceived as pivotal technologies for the shaping of public opinion (e.g., Ansolabehere, Behr, & Iyengar, 1993).

But although all these technologies undeniably have social effects and are instigators of change, it is important not to fall into the trap of technological determinism. The history of technology is replete with examples that illustrate the complexity of predicting social change outcomes merely from the technology itself. For women, the invention of household technologies (e.g., washing machines, gas heating, and other inventions that gradually made it to the majority of households in the USA during the first half of the 20th century) marked dramatic changes in household activities (Cowan, 1976). Based on theory, one could have made the prediction that this freed up women's time and dependency, thereby creating the conditions for a social revolution in gender relations. But instead of fuelling feminism, technology adoption (at least in the first instance) enabled the emergence of the new role of

housewife: middle class women did not take advantage of the freed-up time afforded by technology usage to rebel against structures or even to capitalize on their independence; rather, they excelled in the replacement of the roles formerly performed by their servants. In more general terms, technology usage provides certain opportunities, but how these will be used is hard to predict from the characteristics of the technology alone.

In the present time, this unpredictability of social transformations that accrue from technology is illustrated by the so-called social effects of computing. More precisely, in the workplace technology has been heralded as a major agent of change for many decades but the impact of technology on power relations within organizations is very hard to predict (Zuboff, 1988). Even if technology is experienced by its users as empowering, and communication technology as inherently democratizing (or "open"), there is nothing to stop powerholders from using the very same technologies for repression, autocratic control, and deceit. With reference to China, for example, one might on the one hand say that the communist party has much less control over public opinion than ever before. But at the same time the party is better informed about dissident thought than ever before in history and there are no signs that increased freedom of information has political repercussions. Across the globe we can observe examples that can be interpreted as technologies facilitating democratization and collective action (as may be the case in some Arab countries, see Castells, 2012) and those same technologies facilitating state control (as appears to be the case in most Western countries, where governments are monitoring telephone and internet traffic of their citizens to an unprecedented degree).

Does this mean that technology exerts effects that are intrinsically unpredictable? Maybe not entirely, we would suggest. All technology has a range of primary consequences that may sometimes be inferred without problems. Stirrups make riding a horse easier. Agricultural technology increases output and frees up labour. Industrialization does the same. All technologies thereby lend some power to those who can exercise ownership or command their use. The social consequences of these developments, however, are secondary outcomes. They tend to be much less easily predicted: for example, the freeing up of labour might increase unemployment, fuel developments in other industrial sectors, or simply increase the amount of leisure time. In the example of household technologies such as the washing machine, the time that housewives invested in household chores did not decrease, but rather time gained was spent on existing and new household chores (e.g., because more elaborate meals were cooked, clothes were washed more often etc., see Cowan, 1976).

Interestingly, the primary consequences of computer technology (with which the research that we report below was primarily concerned) are notoriously hard to predict. Even the simple prediction that computing technology increases productivity has proven elusive. For information and communication technology (ICT), it can be said that it speeds up and facilitates certain types of communication (e.g., Castells, 1996; Katz & Rice, 2002; Sproull & Kiesler, 1991). But most clearly, too, ICT has a strong symbolic function: it signals modernity and innovation. Accordingly, information technology tends to benefit the social status of its users, at least in the eyes of those who have a positive image of it. In sum, the reviewed research clearly shows that technology usage can drive social changes resulting in remarkable changes in Western society.

Beyond Modernization: Pathways of Cultural Change

Cultural Change Instigated by Development Aid

In order to learn about societal change, it makes sense to study it where and how it occurs – on a micro level. One obvious place to look for change is in developing nations. Currently, 1.2 billion people live in extreme poverty worldwide. They suffer from hunger, lack of material possessions or money, and live on less than 1.25 U.S. dollars a day (World Bank, 2010). Large sums of money are spent on development aid projects to improve the living conditions of people in developing nations. Interventions focus on different aspects that should improve the life of people, such as installing computers to improve educational outcomes or offering microcredits so that people can develop their own businesses. These two examples illustrate two different primary goals of such development aid interventions envisioned by the project leaders. To date, there is a lot of debate about the effectiveness of development aid projects to reach the projects' goals (e.g., Moyo, 2009; Sachs, 2005). One example that illustrates the ineffectiveness of such an intervention is the introduction of an improved cooking stove in India (Hanna, Duflo, & Greenstone, 2012). Cooking stoves are widely used in developing nations. However, the open fires inside the houses often cause health problems. To prevent these, an improved traditional cooking stove was first developed and tested in the laboratory which reduced indoor air pollution and required less fuel. This improved stove was then distributed to 2651 households in 44 villages in the East of India. The primary goals of the intervention were to decrease indoor pollution, improve health, and reduce fuel consumption. However, the researchers only found a reduction on smoke inhalation in the first year and no further impact. Over the four years of the study, people did not use the stoves regularly or appropriately, and did not make the necessary investments to maintain the stoves, so that their usage ultimately declined over the years. Thus, the primary goals of the project were not achieved. Similar to the primary consequences of computer introduction in Western societies as discussed above, primary consequences of development aid projects are not that easy to predict either.

Another criticism is that these innovations have been primarily developed in more individualist Western nations, based on the assumption that they should stimulate sustainable development. Introducing these innovations in traditional and collectivist developing nations is likely to also stimulate (often) unanticipated consequences, so called side effects, which are likely to drive *cultural changes*. In the context of our research we therefore refer to cultural change as a more specific form of social change. Most interventions aim to achieve their primary goals as mentioned above and do not necessarily envision or intend to stimulate cultural change. Other interventions, however, may intend to stimulate cultural change by empowering specific groups such as women, for example by providing access to microfinance services. Thus, some cultural change attempts may be intended. However, these interventions may also stimulate cultural changes that were not intended, such as less positive side effects of decreased social cohesion or even conflict genesis. Although the effectiveness of development aid to reduce poverty is highly debated (e.g., Moyo, 2009; Sachs, 2005), it is undeniably the case that development aid is a good vehicle for studying cultural change attempts.

Over the past years, we have conducted various studies examining the psychological and cultural effects of these aid programs. We began studying the potential changes that small laptop computers would bring to Ethiopian schoolchildren. Later, we studied effects of providing access to microfinance services among people living below the poverty line in Sri Lanka. In all projects, the same overriding questions were asked: is there evidence of anticipated and unanticipated psychological and cultural change, and what is the process by which it occurs?

A Laptop Program for Students in Ethiopia

Within the context of a *laptop program for students*[iii] we have studied the psychological and cultural changes driven by the introduction of a single novel piece of modern technology, namely a laptop. This field experiment was conducted in Ethiopia, one of the least developed countries in the world, with a low level of modernization in a very collectivist and traditional culture (e.g., Becker et al., 2012). We compared students who were given a personal laptop that they could use in school and take home. To children in the developing world a laptop represents an information-rich novelty, which does not immediately compare to any other prior experience. The laptops provided to students enabled them to read their schoolbooks on the laptop, make calculations, use a text editing application, browse an offline database of Wikipedia articles and a picture gallery, play memory games, draw free-form images, make pictures and videos, chat with other laptops within 10 meters, or explore applications to compose music (for an overview see Hansen, Koudenburg, et al., 2012). It is important to note that there was no internet access available at the time of the study. In total, 4375 laptops of the One Laptop Per Child (OLPC) initiative were distributed in Ethiopia. Laptops were distributed in entire schools. Four schools were selected across the country (for a detailed project description and the selection criteria see Hansen, Koudenburg, et al., 2012; Kocsev, Hansen, Hollow, & Pischetola, 2010). Within the four schools we tracked students in classes in grade 5, 6 and 7over two years and compared them with a matched comparison group of students without a laptop.

We first investigated the impact of the laptop usage on the *anticipated educational outcomes,* the primary goal set by the organization. In Ethiopia this program set out to improve students' educational outcomes and prospects and change the teaching style from frontal teacher-focused to student-centered by introducing the laptop for learning purposes in class (e.g., text books, small group exercises; Kocsev et al., 2010). Six months after laptop deployment we took a stratified sample within all schools of 203 students who received a laptop and matched it with a comparison group of 210 students without a laptop in grades 5, 6 and 7. Our research clearly shows that six months after deployment laptops are hardly used in the class for learning purposes by the teachers; only 2.8% of students who received a laptop indicated that they used it in class (Hansen, Koudenburg, et al., 2012). However, students most frequently used their laptop in breaks (58%) and at home, outside (28.7%) and inside their parental home (10.5%) when they had some free time to do so.

Furthermore, we compared students' grades in the semester just before the laptop deployment and at the end of the semester (approximately eight months later). In line with previous research conducted in developed nations that showed some learning benefits in mathematics and writing, and because some activities on the laptop were presented in English (such as an offline Wikipedia), we focused on English and mathematics as well as the overall grade. Interestingly, we did not find any evidence of improved grades. Thus, our study is one of several that failed to replicate such findings found in developed nations in the developing world (Nugroho & Lonsdale, 2010; Zucker & Light, 2009). Considering the fact that laptops appear to be hardly used in class and are more frequently used during breaks and outside school, the absence of laptop effects on school-related outcomes may not be surprising. Benefits may accrue if these laptops are more tightly integrated into the school curriculum and the assessments.

We further reasoned that the laptops would offer an entirely new environment for the development of specific cognitive abilities, namely reasoning abilities. When students start exploring the activities afforded by the laptop they will use their reasoning abilities to learn more about the similarities and differences between activities. We tested two distinct cognitive abilities: reasoning by analogy and the application and development of categories. These cognitive abilities are fundamental for learning in general. To be able to assess abstract reasoning abilities

independent of reading ability and language differences between the three different regions in our study, we used two subtests of a non-verbal and cross-culturally validated intelligence test (Tellegen & Laros, 1993, 2011). The results show that Ethiopian children who had laptops outperformed children without laptops on abstract reasoning tests of reasoning by analogy and categorization, compared to a comparison group. This effect was stronger among older compared to younger children. Older students used more advanced and complex activities afforded by the laptop compared to younger students, suggesting that more advanced laptop activities may boost students' abstract reasoning more strongly. These better abstract reasoning abilities may stimulate learning in a fundamental way. Previous research suggests that these abilities are closely related to educational performance and success (e.g., Rohde & Thompson, 2007).

In a second step we systematically investigated the *unanticipated psychological and social side effects* of the intervention. Based on previous theorizing and research of modernization theory in political science (e.g., Inglehart & Baker, 2000; Inglehart & Welzel, 2005) and research in cultural psychology (e.g., Markus & Kitayama, 1991, 2010), we expected that children who used their laptop in a traditional and collectivist developing nation should develop a more agentic and independent sense of self compared to those who did not have a laptop. A range of indicators provide evidence for this change. First, we conducted a longitudinal test of the assumptions of modernization theory on the impact of technology usage on value endorsement at a micro-level across the whole sample (Hansen & Postmes, 2013). We compared 573 children who had received a laptop to the matched comparison group of 485 children. Children were asked to indicate to what extent specific values were important to them before and six months after the laptop deployment. In line with modernization theory, children with laptops endorsed modern values more strongly, such as achievement (e.g., to be ambitious), self-direction (e.g., to be independent), universalism (e.g., to treat everyone equally) and benevolence (e.g., to help people around me), and became more supportive of gender equality (e.g., boys and girls should be treated equally) compared to the control group. This change was stronger in rural compared to urban areas. At the same time, traditional values (e.g., to do what religion requires) and conformity (e.g., to do what you are told) increased as well.

One year after laptop deployment, we provided further cross-sectional evidence in another subsample of students from one school (Hansen, Postmes, van der Vinne, & van Thiel, 2012). Similarly to the previous results, students who had been using a laptop showed stronger endorsement of individualist values (i.e., achievement, self-direction) compared to two control groups without a laptop or students whose laptop had broken; while collectivist values (i.e., tradition, conformity) did not differ between the groups. In addition, we assessed students' self-construal, that is, how they see themselves. Students who were actively using their laptop showed a higher independent self-construal (e.g., it is important for me to be unique, different from others) compared to students who did not have a laptop; while students did not differ in their traditional cultural expression of an interdependent self-construal (e.g., it is important to me what others think of me). In sum, these results provide the first evidence that students start developing an agentic and more independent sense of self as evidenced in higher values of more modern values, attitudes towards gender equality as well as a stronger independent self-construal. At the same time, more traditional cultural expressions such as endorsement of traditional and collective values and an interdependent self-construal persisted. However, we can only speculate about how to explain this result. The increase of traditional and conformity values is consistent with previous research: inhabitants of countries that faced economic difficulties also showed increased endorsement of traditionalism (Inglehart & Baker, 2000). The authors suggest that this increase might be a protective response in times of change and uncertainty to strengthen the traditional community bonds. Important to note is that in these collectivist societies individual enhancement is only possible with the enhancement of one's family.

We further investigated the underlying processes of the observed changes. Based on our research we suggest four interrelated *pathways of social change*. First, the laptop offers a fundamental new student-focused learning opportunity (Hansen, Koudenburg, et al., 2012). The activities provided by this laptop require a set of complicated actions that children had to learn and undertake completely independently of their teachers and elders. For the first time students could access new information independently. A separate field experiment mentioned above provided evidence that students who used laptops performed better on an abstract reasoning test compared to a comparison group (Hansen, Koudenburg, et al., 2012). Interestingly, this effect was strongest among older children who used a range of more complicated programs for painting, memorizing, and chatting. In contrast, younger children mainly read their school books. We believe that the facilitation of independent learning stimulated by the laptop activities (e.g. by exploring programs or searching for information) independently of their teachers and elders is an important driver, especially among older children.

Second, related to the previous point only active usage seems to drive these changes. To test this, we conducted another field experiment and compared students who were actively using their laptop with students whose laptop broke (i.e., mere ownership) and with a comparison group of students without a laptop at the same school (Hansen, Postmes, et al., 2012). Only students who were actively using their laptop showed higher endorsement of an independent self-construal and individualist values compared to the comparison groups. Students whose laptop broke and who could not use the applications provided by the laptop did not show these differences. Again, a similar pattern emerged: traditional cultural expression did not differ between the groups, suggesting that some aspects of culture persisted (e.g., tradition, conformity). This study provided initial evidence that active laptop use was instrumental in the development of an independent self-construal and in the adoption of more individualist values, while mere laptop ownership did not have a very large impact.

Third, a laptop of this kind is an immensely valuable property in this context. We assume that providing such a laptop to Ethiopian children constitutes a major upheaval of social relations in itself. Ownership of this object distinguishes a child from others, from their parents, teachers, and friends and thereby makes children visibly different and independent from others. However, mere ownership is not the main driver. Specifically, these changes only emerged when technologies become part of social interactions—if children 'share' their laptop with their family and friends. Mere ownership of technology is not sufficient (Hansen, van der Klauw, & Postmes, 2013). This is consistent with a broader literature which suggests that the social impact of technology is largely due to the social actions and interactions it affords (e.g., Kraut et al., 2002). These changing actions and interactions facilitate the development of a more agentic and independent sense of self, evidenced by a transformation of self-perceptions and values. In other words, the laptop changes with whom and how children interact, offering new possibilities for personal development.

Access to Microfinance Services in Sri Lanka

Another example of development aid programs are programs that offer access to *microfinance services*. More than 30 years ago the concept of microcredit was introduced in Bangladesh by Nobel Peace Prize winner Muhammad Yunus to reduce poverty by providing small loans to the country's rural poor. Since then the number of microfinance institutions (MFI) and people who are receiving microcredits has greatly increased. Moreover, microcredit has also evolved over the years. It not only provides credit to the poor, but also includes myriad financial services such as savings, and non-financial services such as financial literacy training and skills development programs (now referred to as microfinance; Armendáriz de Aghion & Morduch, 2010). Women in particular have been targeted because they are more likely to repay the loan and reinvest their earnings in the business and their

families, compared to men (e.g., Pitt & Khandker, 1998). Although large sums are spent in microfinance services in developing countries, we know very little about the longer-term impacts. More precisely, results on women's empowerment are mixed, with evidence of no, weak, or even negative impacts on empowerment, coupled with a lack of quantitative evidence (for an overview see Duvendack et al., 2011). Therefore, the question is: Do microfinance programs meet their goals in terms of enhancing women's empowerment?

A recent cross-sectional field experiment in Sri Lanka focused on psychological and social change instigated by providing access to microfinance services among marginalized people who live below the poverty line (Hansen, 2013; Hansen & Fernando, 2013). In the context of an intervention, people who were not presently eligible for such microfinance services were recruited and received a special program aimed to help them to become eligible for a micro loan[iv]. This program included three steps: (1) participation in training on soft skills, financial literacy, and technical trainings, (2) learning to save money in groups, and (3) becoming eligible for a micro loan, but only if participants took part in training and successfully started saving. For this quasi-experimental, cross-sectional field study, a random sample of 88 women was selected from two regions in the North of Sri Lanka who had, on average, been part of the program for 12-18 months. These women were interviewed and their results were compared with a matched comparison group of 84 women who had not yet been approached by a microfinance institution but were interested in joining one. This ensured that both groups shared the same motivation.

It is important to note that traditional countries tend to exhibit greater gender inequality and women often tend to stay close to their house resulting in a restricted interaction radius compared to men (e.g., Inglehart & Norris, 2003).This study provided the first evidence that women who were participating in this program showed higher levels of psychological empowerment as documented in a stronger endorsement of control beliefs in the ability to achieve goals. Furthermore, women were asked to name all the groups they were a member of and indicate the number of people they could ask for help outside their family if a family member would get ill. Both indicators were used to assess women's social network size. Results show that women who profited from the program had bigger social networks compared to women who did not take part in the program. This study further provided evidence that these effects were most strongly predicted by the amount of training women had participated in and not by whether they had received a loan or not. We believe that these results provide some initial evidence that the individual capacity built by providing training, which offers new insights and a new increased social network through the participation in the training, are the pathways through which these changes come about. Interestingly, these effects were stronger among women who received a loan for their husband's business compared to women who received a loan for their own business. We believe that women who were running their own business were already to some extent more independent compared to women who were supporting their husband's business. For the latter, the participation in this program offered even newer content, a larger territorial radius, and more social interactions.

Pathways of Cultural Change Through Modernization

The above mentioned micro-level research extends previous theorizing on social change by (1) introducing modern innovations as drivers of cultural change, (2) suggesting new underlying processes, (3) providing evidence of cultural change such as value and attitude change. Next, we will outline in detail two key pathways of cultural change in developing countries.

Based on our previous research on two different modern innovations (laptop usage and access to microfinance services) in two different cultures (Ethiopia and Sri Lanka), we suggest that there are two key conceptual pathways

that stimulate cultural change in developing countries. Our recent research provides the first empirical evidence that the introduction of modern innovations can instigate cultural change as demonstrated in stronger endorsement of more modern values, an increased social network, and stronger attitude change towards gender equality. At the same time, however, traditional values persisted. Based on our empirical evidence we suggest two key pathways that drove the change observed across the interventions we studied. First, across both interventions and documented on a range of indicators, people developed an *agentic and independent sense of self* through technology usage or participation in trainings. In both cases people started learning independently and acquired new information to which they did not have previous access. In the case of the laptop program for students, children independently of their teachers and elders learned to master the laptop depending on their own interest and proficiency level. In the case of the microfinance program, women learned new abilities with respect to life and business skills.

Second, both interventions offered new possibilities for *acting and interacting* and in turn changing the structure of social relations. For example, when children start explaining to their parents or older siblings how to use the laptop, they are changing the deeply-embedded hierarchical structures that characterize their culture. Traditionally, children are less likely to address their fathers and explain and teach their elders. We believe that it is the increased scope for action, in particular, that has the capacity to produce long-lasting change. In such processes, intergroup conflict may be a potential risk, but our research has found no evidence of it actually emerging. Instead, considerable cultural change occurred over the course of our studies apparently without any intergroup tensions, purely because the technology was opening new avenues for people to explore. Similarly, for example, by starting to interact with new people as well as learning and discussing new topics such as how to handle financial issues and how to set up a business in the context of training, women are changing the deeply-embedded hierarchical social roles that characterize their culture.

Implications

Implications for Theory and Research on Societal Change

To date, social psychological research on social change has mainly focused upon intergroup dynamics or conflict as a driver of change (e.g., van Zomeren & Iyer, 2009). We extend previous research by suggesting (1) that the adoption of modern innovations is a key driver in cultural change and (2) introducing two pathways of psychological change that are likely to stimulate cultural change. More precisely, one pathway is instigated by people's development of an agentic and independent sense of self through modern innovations such as technology usage or participation in trainings. The second pathway is instigated by new possibilities for acting and interacting with others. Both pathways are parallel processes that have the power to change the structure of social relations. Investigating the impact of development aid projects provides insight into how these changes occur and result in cultural and societal change.

Our suggestions are based on research that provides insights into micro-level changes driven by two different modern innovations, and has so far focused on rather short-term impact of up to two years. Future research should more carefully investigate the benefits and risks of the cultural changes instigated by development projects in the long-run. The observed changes in cultural values, female empowerment, and attitudes towards gender equality might also trigger conflicts with friends, partners, or parents who did not profit from a program or who might be skeptical about the changes. More precisely, with respect to the microfinance intervention for example, it is likely

that some people may profit from this program (i.e., alleviate poverty) whereas the lives of other families stay un-changed.

According to the theoretical perspective of the relational models theory (Fiske, 1992, 2000), there are four funda-mental choices human beings have in dealing with each other: communal sharing, ranking on the basis of authority, equal matching, and pricing. Sharing seems the dominant relational model among people living below the poverty line in developing countries. Furthermore, this is very likely not the only model; much of life revolves around ranking and matching as well. To date, pricing may still be less important. However, when for example people start selling small proportions of their farm produce and craft on markets, pricing is likely to become an important relational model which is likely to result in dramatic social changes with respect to social cohesion. Future research should focus on longer-term changes with respect to social relations and social cohesion.

Practical and Political Implications

A key practical and political implication of our research is that 'modern' innovations can instigate the first signs of *cultural change*. Development aid projects are often set up with high and utopian primary goals anticipated by the involved stakeholders. As our research shows, for example in the context of a laptop program for students, the *primary anticipated goal* of improved educational outcomes is only partly met. Students showed, for example, improved abstract reasoning abilities, while the laptops are hardly used for learning in class and school performance (i.e., grades) did not improve. This is an important insight for involved stakeholders who want to improve the ef-fectiveness of these programs. Most importantly, development aid projects also instigate *unanticipated secondary changes* such as changes towards an agentic and independent sense of self, stronger endorsement of 'modern' values alongside traditional values, and attitude change towards more gender equality. These so-called side effects are often not (directly) anticipated by involved stakeholders. However, they are often crucial to gain insight into the social consequences of interventions, not least of all because changes in relations or tension between members of a community might otherwise fuel conflict. Only if the whole community such as partners, parents, family, and neighbors are carefully involved in the intervention do these programs have a chance of achieving their goals. Interestingly, we did not find evidence for an erosion of traditional culture in our studies. This is in line with previous research on value change (Inglehart & Baker, 2000): making your parents and community proud is a major moti-vation in collectivist developing countries. Only when also caring for one's family can people become successful in life.

Another political implication is that many development aid projects are designed to empower the poor. The programs are set up to provide people with tools that enable them to engage in activities that are aligned with more modern societies and thus foster economic and social development (i.e. Inkeles & Smith, 1974). However, the way these programs are often set up does not lead to the desired empowerment. In contrast, they often create a *dependency-orientated* rather than an independency-orientated relation with the donor side. For example, in the field of laptop programs for students, children receive their own laptop. They sometimes (depending on the approach of the program) receive a short introduction on the activities afforded by the laptop and can then start exploring these activities depending on their own interest and level. However, what happens when a laptop breaks down? In many contexts the expertise on how to repair a laptop is not yet available and even worse, many of these programs do not offer any spare parts (e.g., Warschauer & Ames, 2010). To be able to further use the new technology, recipients are dependent from the often commercial interests of these organizations. On a higher level, developing countries often stay dependent on these organizations from the developed world. Thus, this intergroup 'helping' stays de-pendency-orientated and not autonomy-orientated (e.g., Nadler & Halabi, 2006; van Leeuwen & Täuber, 2010).

At a more basic level, people might even stop using technologies because they broke or require electricity, which is often a scarce resource.

Many projects also neglect the *additional costs* that are required to ensure the sustainability of these projects. Again referring to the example of laptop programs for students, the significant additional costs of providing technical support such as repairs of broken laptops, electricity, or new software (e.g., Adhikari, 2011) and for adapting laptops to the specific context (e.g., Warschauer & Ames, 2010) are often neglected. These additional investments are crucial for the sustainable success of these laptop programs for students in developing countries. Only with accompanying support (see also Warschauer & Ames, 2010) and sustainable interest from involved stakeholders (e.g., Unwin et al., 2010) can these programs contribute to sustainable societal change.

Related to the previous point we want to pose a further question: Who is helped (and in what way) by different forms of aid? Development aid has very different forms and is aimed at different groups of beneficiaries. Thus, the answer to this question is multifaceted. We want to illustrate this with two examples. First, in both of the contexts addressed here, another party also profits from the development aid interventions (i.e., commercial interests): organizations providing laptop programs for students want to increase sales figures, and microfinance institutions aim to secure stable repayments and earn from the interest rates. Thus, development aid is clearly often not purely charitable. Second, in the field of laptop programs for students, our research suggests that the anticipated primary goals are often not really achieved, while often unanticipated secondary social changes might occur. We provide initial empirical evidence for some remarkable changes with respect to the development of an agentic and more independent sense of self (e.g., Hansen, Koudenburg, et al., 2012; Hansen, Postmes, et al., 2012; Hansen et al., 2013). However, laptop programs for students are quite expensive by local standards and cost-benefit analysis may not always warrant the investments. Given that education is another key driver of societal change, other investments such as teacher training or other learning materials might be cheaper and may lead to other learning benefits. Thus, a careful, culturally-sensitive implementation of these interventions is crucial for sustainable development.

Conclusions

In this article, we proposed that cultural change can be stimulated by modernization, extending previous theorizing on societal change in political and social psychology that has mainly focused on intergroup dynamics. We advanced the idea that it is important to look at micro-level changes driven by development aid projects that introduce modern innovations from developed nations in more traditional developing nations. Studying these attempts to stimulate anticipated or unanticipated cultural change is another fruitful way to develop psychological theory in the field of societal change. On a broader level, we propose that examining societal change driven by development aid in developing countries might be crucial for future research on globalization issues. Such changes are likely to play a key role in processes of globalization. For example, social media has played a crucial role in the Arab Spring and is likely to play an important role in the future. Within a more globalized world, cultural changes in developing nations will likely also influence the intergroup dynamics between the developing and developed societies worldwide.

Notes

i) In the interest of being concise, numerous other theories are not discussed in this article, such as modern racism or relative deprivation theory.

ii) We use the term 'social change' throughout the manuscript when referring to previous theorizing focusing on changes in the social structure of a society. This terminology has mainly been used in the literature cited in this article.

iii) This research was conducted in the context of an intervention of "One Laptop Per Child" (OLPC), a U.S.-based non-profit organization that is a spinoff of the Massachusetts Institute of Technology Media Lab. OLPC has designed and sells a low-cost laptop for students with the goal to improve students' educational outcomes and future prospects. This organization has attracted an estimated initial investment of at least $255 million (excluding costs of deployment, power, and maintenance) to provide laptops for children in developing nations. Among the biggest takers are countries such as Peru (550,000), Uruguay (420,000 laptops), and Rwanda (120,000). In Africa, Ethiopia was the first country to receive 5,900 laptops from the OLPC initiative in 2008. At the time of the study, laptops were not connected to the Internet. All programs are described on the OLPC website (retrieved from http://www.laptop.org/en/laptop/software/activities.shtml on April 30, 2013).

iv) This research was conducted in the context of an intervention that provided access to microfinance services, training, and consultancy service to marginalized sections of the population in Sri Lanka. This program called ProMiS (Promotion of the Microfinance Sector) was implemented by the Ministry of Finance and Planning, Sri Lanka, in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, a German government-owned enterprise operating under the Federal Ministry for Economic Cooperation and Development. The overall goal of the ProMiS program was to improve economic and social inclusion as well as social integration of the poor. For more information see: http://www.youtube.com/watch?v=ii05554S3To

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