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# Societal Change and Values in Arab Communities in Israel: Intergenerational and Rural–Urban Comparisons

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## Abstract

This study tested and extended Greenfield's theory of social change and human development to adolescent development in Arab communities in Israel undergoing rapid social change. The theory views sociodemographic changes—such as contact with an ethnically diverse urban setting and spread of technology—as driving changes in cultural values. In one research design, we compared three generations, high school girls, their mothers, and their grandmothers, in their responses to value-assessment scenarios. In a second research design, we compared girls going to high school in an ethnically diverse city with girls going to school in a village. As predicted by the theory, a *t* test and ANOVA revealed that both urban life and membership in the youngest generation were significantly related to more individualistic and gender-egalitarian values. Regression analysis and a bootstrapping mediation analysis showed that the mechanism of change in both cases was possession of mobile technologies.

## Keywords

values, societal change, Arabs in Israel, adolescent development, gender roles, sexuality, intergenerational change, rural–urban

One of the most important contributions cross-cultural research has made to the field of psychology has been to show variations in cultural values around the world and their influence on human psychology. Values operate as generalized assumptions of good and bad that shape individuals' beliefs, attitudes, behaviors, evaluations, and justifications across a variety of situations (Rokeach, 1973; Schwartz, 1992). Recent theoretical and empirical work has added a critical dimension to the study of cultural values: the impact of sociodemographic change (e.g., Greenfield, 2009; Kağitçibaşı, 2007; Keller & Lamm, 2005). This research often comes from a developmental perspective, showing that changes such as increasing urbanization and higher levels of formal schooling correspond to shifting values in child-rearing beliefs and practices (Greenfield,

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Maynard, & Childs, 2003; Keller & Lamm, 2005; Raeff, Greenfield, & Quiroz, 2000), family negotiations of adolescent autonomy (Kağitçibaşı, 2005), and identity formation during the transition to adulthood (Manago, 2012). The current study advances this work, investigating how various forms of sociodemographic change among Arab-Muslim grandmothers, mothers, and adolescent girls in Israel might correspond to shifts in cultural values guiding developmental tasks during adolescence and the transition to adulthood.

## A Theory of Social Change and Human Development

Greenfield's (2009) theory of social change and human development posits that sociodemographic change drives changes in development and psychological values. *Gemeinschaft* and *Gesellschaft*, concepts developed by sociologist Ferdinand Tönnies (1887/1957), are used in the theory to describe a common direction of sociodemographic change in the world: A shift from tight-knit, homogeneous, rural communities with low levels of formal education and technology (*Gemeinschaft*) to large, diverse, and commercial urban centers with higher levels of formal education and technology (*Gesellschaft*). The terms *Gemeinschaft* and *Gesellschaft* designate typologies that anchor a host of sociodemographic continua including economy, education, technology, and social relations. Greenfield predicts that movement down any of these sociodemographic continua toward the *Gesellschaft* typology will drive development and values toward increasing individual independence and away from family interdependence.

By positioning sociodemographic factors at the causal level of cultural values and development, the theory resolves issues in cross-cultural research that occur when cultural values are assumed to be static. The theory explains why variations in values within countries are just as significant as variations between countries (Fischer & Schwartz, 2011). It also explains that similar sociodemographics are the reason why studies that compare college students in urban areas in traditionally individualistic cultures, such as the United States, with college students in urban areas in traditionally collectivistic cultures, such as Japan, fail to find differences along the dimension of individualism and collectivism (Oyserman, Coon, & Kimmelmeir, 2002; Takano & Osaka, 1999). Greenfield's theoretical framework is essential for cross-cultural research under contemporary circumstances where globalization and the spread of communication technologies unsettle national boundaries as proxies for cultural boundaries.

The theory is also particularly useful for understanding intergenerational value change in families where each generation is growing up under different sociodemographic conditions. Indeed, the movement from more *Gemeinschaft* to more *Gesellschaft* environments constitutes a global trend occurring across generations that includes increasing urbanization (Call, Riedel, Heine, McCloyd, Peterson, & Kipke, 2002; Greenfield, 2013; Larson, Wilson, Brown, Furstenberg, & Verma, 2002), movement from subsistence to commercial–industrial economies (Greenfield, 2004), and increasing formal education (Greenfield et al., 2003).

A number of studies in various countries of the world support this theory of social change and human development, showing that economic development (Mexico: Greenfield, 2004), formal education (India: Seymour, 1999; Mexico: Manago, 2014), and urbanization (China: Fuligni & Zhang, 2004; Lahat, Helwig, Yang, Tan, & Liu, 2009; United States and United Kingdom: Greenfield, 2013) are associated with increasing emphasis on personal choice and autonomy across generations. Correlatively, adherence to parental authority and family obligation is decreasing in places with long-standing values for family interdependence.

Many of the shifts in values and behavior are tied to changing gender roles and changes in the structuring of romantic relations. Manago (2012, 2014) found that the expansion of formal education for girls into the adolescent years, as well as moving from village to city, brought more egalitarian gender roles and greater freedom in seeking a romantic partner for indigenous Maya young women in Chiapas, Mexico, compared with their mothers and grandmothers. The social

dilemmas that she used in this study are the same materials that we adapted to study our samples of Arabs in Israel; they are described in detail in the “Method” section.

Most relevant to the adolescent period of development is the global augmentation of communication technologies (e.g., Ling & Haddon, 2008). Around the world, diminished attachment to parents, disruption of family life, and increased importance of peer relations accompanies computer and Internet use (Israel: Mesch, 2003; United States: Richards, McGee, Williams, Welch, & Hancox, 2010; Rosen, Cheever, & Carrier, 2008; Singapore: Lee & Kuo, 2006), as well as other mobile media like the cellphone (Norway: Ling & Yttri, 2002).

## Measuring Cultural Values

The approach we take in this study seeks to resolve some methodological issues involved in measuring values across different cultures and languages. A fundamental tension in measurement is whether items that have been developed in one culture translate to other cultures, and therefore, whether scores can be accurately compared across cultures (Greenfield, 1997). Another fundamental tension in cross-cultural psychology, in general, is distinguishing between cultural differences and human universals. To this end, we adopt and adapt a culturally sensitive approach that used short stories in the form of social dilemmas to measure value change in conjunction with the transition from a more *Gemeinschaft* to a more *Gesellschaft* environment in an indigenous Maya community in Mexico (Manago, 2014).

The stories capture universal adolescent developmental tasks that are adapted to particular cultural norms, practices, and beliefs. The primary tasks during adolescence revolve around identity development, gender role development, and sexual development (Schlegel & Barry, 1991). In becoming a responsible adult member of society, adolescents negotiate transitions into adult work and family gender roles, which include orienting to relationships in relatively larger social spheres and finding a suitable partner for family formation. The original measurement instrument developed by Manago (2014) taps into these universal tasks with eight short stories about gender roles, gender relations, partnering, transition into adult work roles, and peer relationships. Two of the co-authors from Arab-Israeli communities adapted the original narratives, so that they made sense within the local context; they also added one culture-specific scenario (see “Materials” section). These short stories are a useful way to measure value priorities across cultural contexts because stories represent a universal form of cognition (Bruner, 1990) and are amenable to cultural modifications so as to resonate with local meanings.

## Current Study

### *The Arab Community in Transition in Israel*

The Arab community in Israel has undergone significant social change since the establishment of the state in 1948. At that time, a bit more than half of the inhabitants in what became the borders of the state were Arabs. Soon after, and continuing until the present day, about 75% of the population is Jewish, and about 21% is Arab. Consequently, one motor for social change in Arab communities is the fact that they are within Jewish Israel, a highly developed *Gesellschaft* society, one of the characteristics of which is a heterogeneous population comprised of multiple ethnic and cultural groups.

Following the radical population shift to a majority Jewish population, there have been notable sociodemographic changes over the course of the three generations we are investigating in the current study. What has historically been a largely rural population is increasingly urban. Whereas in the early 1980s, half of the Arab population lived in localities numbering less than 10,000 people, in 2008, only about 30% did so.<sup>1</sup>

Along with population shifts, there have also been changes in sociodemographic characteristics of Arab families, such as education, marriage, and children. From 1990 to 2010, post-secondary education rose 19% among Arab women and 11% among Arab men. In roughly this same time period, there has been a rise in the age of marriage and a decrease in family size. In the 1980s, the average age of marriage was about 20 years for women and 24 years for men, and the average family size was about 4.4 children. In 2010, the average age of marriage was about 22 years for women, and about 27 years for men, and the average family size decreased to 3.5 children.

Sociodemographic change is also reflected in the ownership of goods and the use of technology. From 1986 to 2000, there was an increase among Arab families in ownership of goods such as stereo systems (11% to 22%), VCRs (11% to 38%), at least one phone line (33% to 85%), and at least one car (9% to 46%). The use of communication technologies has risen, especially in the last decade. By the year 2000, 21% of Arab families had a computer in the home; that number rose to 63% in 2010. In that same time, Internet subscriptions rose 37%.

This statistical information shows that, in the span of time since mothers of adolescents were themselves adolescents until the present day, there have been great shifts in the sociodemographic ecologies of the Arab community. Of particular relevance to the current research, these shifts include greater urbanization, increased levels of education, expanded opportunities for women outside the home (along with decreased demands in child-rearing), and greater access to technology, as well as access to the wider world that technology engenders. In considering social change in the Arab community in Israel, it is important to remember that the majority population within the wider culture likely has an influence on social change in the Arab community, as younger people have greater access to the urbanized, technological, diverse world around them (Gavison & Abu-Ria, 1999).

While the village environment has moved in the direction of an urban environment, the city remains a more *Gesellschaft* environment, to a great extent because of more Jewish Israeli influence. For example, Haifa has two major universities and a number of colleges. There are Jewish Israeli shops, as well as shops that are run by multinational corporations. Unlike the village, Haifa has a multiethnic population consisting of Jews and Arabs.

## *Design and Hypotheses*

Because there has been a great deal of sociodemographic change in the Arab community over the course of several generations, we predicted that, in line with Greenfield's (2009) theory, those growing up in different sociodemographic ecologies would develop different values. This prediction led to our intergenerational comparison, in which we compared the values of triads of adolescents, mothers, and grandmothers. We expected that this three-generational comparison would embody the effects of the gradually expanding educational opportunities for Arab women, as well as the suddenly expanding use of personal communication technologies.

Our research design also includes the rural–urban dimension: We compare adolescent values in a rural village with those in an urban city. The technological dimension is also important, and we assess it by surveying technology access and use. We expected that urban residence, higher levels of formal education, and the spread of computer and cellphone technologies would lead to corresponding shifts in values toward more egalitarian gender roles and more independent cross-sex relations.

It is important to note that sociodemographic shifts do not suddenly switch values and behavior; community traditions may still have a strong pull even in *Gesellschaft* societies. The process of change often involves negotiating compromises between the old and the new. The process of change is not all or none; yet it is detectable. Given this, we are testing the theory that changes in sociodemographic characteristics will indeed lead to predictable shifts in values.

**Hypothesis 1 (H1):** Our first hypothesis was that urban adolescents would tend to endorse more individualistic and gender-egalitarian values than would rural adolescents. To test this, we compare a group of rural Arab-Muslim adolescent girls in a culturally homogeneous, all Muslim village in the Haifa district with a group of urban Arab-Muslim adolescents living in the city of Haifa.

**Hypothesis 2 (H2):** Our second hypothesis was that, with changes in sociodemographic characteristics of the community and the surrounding area across time, adolescent girls in the village would endorse more individualistic and gender-egalitarian values than their mothers, who, in turn, would endorse more individualistic and gender-egalitarian values than their grandmothers in the sample.

**Hypothesis 3 (H3):** Our third hypothesis was that both the urban–rural and the intergenerational differences could be explained by sociodemographic changes that the families had experienced over the generations. We hypothesized that particular changes in sociodemographic ecologies would have relatively greater impact in producing value change. We tested this hypothesis and identified the most impactful changes through mediation models.

## Method

### Participants

Twenty adolescent girls (age  $M = 16.68$ ,  $SD = 0.78$ ) from an Arab-Muslim village in northern Israel participated in the research along with their 20 mothers (age  $M = 46.60$ ,  $SD = 6.02$ , range 36–60), 20 of their maternal grandmothers (age  $M = 66.95$ ,  $SD = 7.84$ , range 52–80), and 20 similarly aged adolescent girls (age  $M = 17.23$ ,  $SD = 0.54$ ) from a mixed Jewish, Arab Muslim, and Arab Christian city (Haifa) from the same administrative district in northern Israel. The city of Haifa is a mixed city comprising primarily Jews, but includes about 10% Arabs, a bit less than half of whom are Muslims.

The urban sample was recruited at an Arab high school in Haifa through a process of snowball sampling. It is a private school that was historically Christian and is still run by a Greek Orthodox religious council. Today, this Arab high school includes diverse religious groups: Muslims, Christians, and Druze; Muslims were in the majority. All of the participants in this study were Muslims. Individual interviews were done in a park near the school.

The village sample attended a regional high school with a homogeneous population of Arab Muslims. The region includes five villages in north central Israel, a region that is primarily Arabic. The high school girls from the village were recruited by telephone through a process of snowball sampling. They then asked their mothers and grandmothers if they would also participate. If all three were willing, they were interviewed in their homes. Each member of the family was interviewed individually in a separate room of the house or, in the case of the grandmothers, usually in a separate house. Interviews in the same house were done in immediate succession to avoid discussion between participants of different generations.

In the village, 18 out of 20 of the mothers were homemakers; the dominant occupation of the fathers (10 out of 20) was construction. All of the grandmothers were homemakers; the dominant occupation of the grandfathers (9 out of 20) was also construction. Five of the mothers had elementary school education, 14 had high school education, and 1 had undergraduate education. Among the grandmothers, 13 had no formal education, 1 had a few years of religious education as a child, and 6 had elementary school education. Fifteen of the fathers had high school education with 2 having post-secondary studies. The other 3 fathers had elementary school education. Just 2 of the grandfathers had high school education, the highest level in that generation.

In contrast, although they were not interviewed for this study, all of the parents of the urban sample had at least high school education, with six mothers and seven fathers having post-secondary education.

The girls received the equivalent of about \$12 (U.S. dollars), the mothers the equivalent of about \$17, and the grandmothers the equivalent of about \$20 as compensation for their participation.

## Materials

The adolescents responded to a sociodemographic interview (see Appendix A) that was designed to gain information regarding parents' work and education, number of siblings and their work and education, opportunity for interaction with diverse groups of people outside of their localities, household belongings, personal mobile technology, media use, contact with boys, and religious practice. The mothers and grandmothers responded to a similar interview that also included retrospective reports, where pertinent, of when they were adolescents, as well as self-reports of their work and education.

The sociodemographic variables used in the analysis were mother's education, father's education, number of siblings, non-Muslim friends, watches non-Arabic TV, has personal mobile technology, responds to five calls to prayer, girl helps her parents in the home, girl works outside home, household goods, travel outside Israel, has personal mobile technology, friends with boys on Facebook, and wears a headscarf.

Education was a 6-point scale from 0 (none) to 5 (graduate school). Personal mobile technology was a 4-point scale from 0 (none) to 3 (laptop, cellphone, and Internet on phone). A score of 1 was given for any one of the three; a score of 2 was given for any two of the three. The following were all binary variables (*yes* or *no*) for each generation: has non-Muslim friends, watches non-Arabic TV, responds to five calls to prayer, has traveled to another country, and wears a headscarf. The following were binary variables concerning adolescent girls only: girl helps her parents in the home, girl works outside home, and girl is friends with boys on Facebook.

Following the sociodemographic interview, all of the participants responded to a semi-structured interview task that presented nine dilemmas concerning conflicts around gender roles and cross-sex relationships (see Appendix B). The dilemmas were adapted and expanded from those used by Manago (2014) primarily by two of the authors, Ganayiem and Igbariya, one from the same village and the other having studied at the same urban high school as the adolescent participants in the study. Ganayiem and Igbariya also conducted the interviews, each in her familiar setting. Based on the model of dilemmas used in a study of Mayans in Mexico, the dilemmas were designed to present points of potential conflict in which it was assumed that some of the participants would agree with the more *Gemeinschaft* viewpoint of one character in the dilemma and some would agree with the more *Gesellschaft* viewpoint of the other character in the dilemma. Although based on a model from a different culture, the dilemmas were designed to be quite culture specific, finding points of tension particular to the village and between the rural and urban adolescent girls. We were surprised and pleased that the authors from the Arab culture felt that most of the dilemmas did not need adaptation (outside of language translation) to be relevant to the experience of social change that the Arab population in Israel had been undergoing.

The topics of the dilemmas (with the overall issue for adolescents in parentheses) included whether (a) men needed to walk in front of women (gender status), (b) a wife needs to do the cooking as opposed to a female elder (female gender roles), (c) a husband needs to help his wife with the housework when she requests him to (male gender roles), (d) girls and boys should be allowed to talk outside of school (cross-sex relations), (e) an engaged woman could break off the

arranged but consensual engagement (marriage), (f) young people should leave the village to study in the city (transition to adult work for men), (g) a woman can seek a profession rather than early marriage (transition to adult work for women), (h) a girl can regularly leave the house to hang out with girlfriends (adolescent peer relations), and (i) a girl needs to wear a headscarf after a certain age (women's religious obligations). This last dilemma issue was added to the eight dilemma issues that had been used by Manago (2014) in an indigenous Maya community in Chiapas, Mexico.

### *Procedure*

The interviews were conducted in Arabic by authors Igbariya and Ganayiem. Each of the participants was interviewed individually at their home or in the park in a single session. The interviews took between 40 and 60 min.

### *Data Analysis*

As written Arabic and spoken Arabic are quite dissimilar, the interviews were transcribed into the vernacular Arabic, rather than the more literary written Arabic, before being translated into English. The English translations were used to facilitate the development of the coding with the participation of the non-Arabic-speaking researchers. The Arabic transcripts were used for the final coding after the Arabic-speaking researchers obtained inter-rater reliability on each of the dilemmas.

The dilemmas were coded for tendency toward agreement with the *Gemeinschaft*-adapted viewpoint, the *Gesellschaft*-adapted viewpoint, or a position in between. The score of 1 meant the participant had chosen the character representing a *Gemeinschaft* perspective. An example of a response coded as 1, from the dilemma (2) regarding whether a wife needs to do the cooking as opposed to a female elder, is as follows: "I agree with the man because the wife should not neglect her husband." A score of 3 meant that the participant had chosen the character representing a *Gesellschaft* perspective. An example of the 3 score, from the cooking dilemma, is as follows: "I agree with Sahar [the woman] because his mom is at home and she can cook; this should not prevent Sahar from work or finding a job." A score of 2 meant that participants agreed with both characters in the story and could not decide which perspective was better. An example of the 2 score from the cooking dilemma is the following: "I think Sahar should find a job but at the same time she has to cook and prepare food." For inter-rater reliability, the two mother-tongue Arabic-speaking raters (authors Ganayiem and Igbariya) coded the same 19 of the 80 transcripts independently and had substantial agreement on all nine dilemmas. Free-marginal Kappa scores, used when the marginal proportions are not fixed (Brennan & Prediger, 1981; von Eye, 2006), were calculated and they ranged between .76 and 1.00.

Table 1 shows Spearman's non-parametric rank correlations among the dilemmas. Overall, it is possible to see inter-correlation among the dilemmas. In other words, participants tended to be consistent in their views across dilemmas. Although there is not perfect correlation among the dilemmas, every dilemma is positively correlated with at least two of the dilemmas across the samples, and all are positively correlated or marginally correlated with at least one other dilemma within each sample. Because values can be situation-specific (Greenfield & Quiroz, 2013), we did not want or expect high correlations. Nevertheless, in both samples, most of the non-significant correlations appeared to be in the positive direction, as expected. There were no significant negative correlations, which would indicate inconsistent views. Based on the general sense of direction indicated in this table showing relationships among the dilemmas, a mean score was calculated representing the tendency across the dilemmas.

**Table 1.** Spearman's Rank Correlations Among the Dilemmas.

	1	2	3	4	5	6	7	8	9
1. Men walk in front of women	—	.31**	.28*	.38**	.22*	.02	.10	.53***	.17
2. Who cooks at home?	.25†	—	.10	.16	.28*	.20†	.23*	.10	.11
3. Help with housework	.16	.00	—	-.12	-.07	-.03	.07	.38**	.29*
4. Boys and girls talk	.17	.36*	-.02	—	.12	-.01	.26*	.07	.02
5. Fiancés	-.06	-.18	.29*	-.10	—	.14	.16	-.07	.14
6. Leave for the city	.06	-.04	-.10	.01	.30*	—	.21*	.05	.19†
7. Professional woman	.15	.29*	.07	.19	.00	.15	—	-.03	.17
8. Girl have fun with friends	.51***	.29*	.28*	.16	.02	.19	.07	—	.12
9. Headscarf	.35*	.22†	.07	.14	-.02	.19	.23†	.30*	—

Note. Correlations below the diagonal are based on combining the urban and rural adolescent samples. Correlations above the diagonal are based on combining all the generations in the village sample.  
 † $p < .09$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Statistical Analysis

An independent-sample *t* test comparing the rural and urban high school girls and a one-way ANOVA comparing the three generations in the village were carried out, using the combined mean score for all of the dilemmas as the dependent variable. To isolate the sociodemographic factors responsible for the differences, we followed up these analyses with regression analysis and a test for mediation.

For the mediation test, we used a bootstrapping analysis (Preacher & Hayes, 2008). That is, we tested whether the total effect of the urban/rural group independent variable would disappear in favor of an indirect effect through the proposed mediation of various sociodemographic variables. Mediation is commonly tested using the parametric approaches of Baron and Kenny (1986) or Sobel (1982, 1986). The assumption of multivariate normality of the distribution of the total and specific indirect effects can be problematic in mediation tests without large samples (MacKinnon, Rose, Chassin, Presson, & Sherman, 2000; Preacher & Hayes, 2008). Thus, the bootstrapping method was used because, as a non-parametric test, it is suitable for the number of participants in our samples, and unlike parametric mediation, it can be used with multiple possible mediators to test for the indirect effect of each mediator variable while controlling for all other variables in the model; it has also generally been shown to be an improvement over parametric tests even with larger samples (Fritz & MacKinnon, 2007; Preacher & Hayes, 2004). With bootstrapping, the sampling distribution is approximated through resampling. The results of this process are point estimates and percentile confidence intervals (CIs) for indirect and total effects. If the CI around the indirect effect does not include zero, the mediation is considered to be significant. In the present study, bootstrap percentile CIs were calculated with bias correction and 5,000 bootstrap samples as recommended by Preacher and Hayes (2008). The analysis was performed using an SPSS macro provided on Hayes's website (Hayes, 2014).

## Results

### Comparing the Rural and Urban Adolescent Groups

Confirming H1, a significant independent-sample *t* test,  $t(38) = 2.44$ ,  $p = .019$ ,  $d = .80$ , indicated that the urban girls ( $M = 2.43$ ,  $SD = 0.26$ ) tended more toward a Gesellschaft orientation than did the rural girls ( $M = 2.18$ ,  $SD = 0.36$ ). These means indicate that, on the average, both groups of high school girls were on the Gesellschaft side of the scale, although the urban group significantly more so.

**Table 2.** Sociodemographic Characteristics Found Correlated With Either Urban–Rural Residence or Mean Dilemma Scores.

Sociodemographic characteristics	Urban/rural	Dilemma scores
Girl works in home	-.23	-.37**
Girl works outside home	.46**	.30
Girl's mother works outside home	.52***	.29
Mother's education	.38*	.15
Father's education	.29	.04
Number of siblings	-.37*	-.21
Non-Muslim friends <sup>a</sup>	.82***	.28
Household goods <sup>b</sup>	.49**	.22
Travel outside Israel	.59***	.11
Has personal mobile technology <sup>c</sup>	.37*	.35**
Friends with boys on Facebook	.70***	.39*
Wears a headscarf	-.60***	-.28

Note. Correlations are rank correlations calculated with Spearman's rho. Rural = 1, Urban = 2.

<sup>a</sup>Jewish, Christian, or Druze.

<sup>b</sup>Sum of the following items at home: computers, televisions, and vehicles.

<sup>c</sup>Number of the following: personal laptop, personal cellphone, and Internet on cellphone.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

To test whether sociodemographic variables might mediate the relationship between urban or rural residence and the mean dilemma score, we began by determining which sociodemographic variables were correlated with both the rural/urban variable and the dilemma score. Table 2 shows the variables that were found to be correlated with either rural/urban residence or mean dilemma score, according to Spearman's rank correlation, which is suitable for small samples. Variables correlated with both the independent (rural–urban residence) and the dependent variable (mean dilemma score) were used in the regression model.

Therefore, predictor variables in the regression model included rural–urban residence and the sociodemographic variables of “has personal mobile technology” and “friends with boys on Facebook,” the only sociodemographic variables correlated with both rural–urban residence and the mean dilemma score. Collinearity statistics (variance inflation factor [VIF] and tolerance) indicated that there was no multicollinearity among the predictor variables, with the VIF for each variable  $< 5$  and the tolerance  $> .02$ . Table 3 shows the correlations among all the sociodemographic variables that are related to either group or dilemma score. Although “has personal mobile technology” and “friend with boys on Facebook” are significantly correlated, the correlation ( $r = .33$ ) accounts for only 11% of the variance. However, the general pattern of significant correlations among all the variables in the table does support the assumption of interrelated (but contrasting) characteristics of *Gemeinschaft* and *Gesellschaft* ecologies.

The regression model, with urban or rural residence as independent variable and the other sociodemographic variables as potential mediators, was significant,  $F(3, 36) = 5.64$ ,  $p = .003$ , and explained 32% of the variation. This model shows that urban residence predicts relatively more *Gesellschaft*-adapted values, whereas rural residence predicts relatively more *Gemeinschaft*-adapted values. Figure 1 separates the effect of the various predictors. Personal mobile technology mediates the relationship between urban–rural residence and mean dilemma score, with higher use of mobile technologies predicting more *Gesellschaft*-adapted values.

There are several indications that the effect of urban residence is mediated by having access to mobile technology and the Internet. First, although urban residence significantly predicts more

**Table 3.** Correlations Among Sociodemographic Variables in the Adolescent Samples.

	1	2	3	4	5	6	7	8	9	10	11
1. Girl works in home	—										
2. Girl works outside home	-.20	—									
3. Mother works outside home	-.07	.35*	—								
4. Mother's education	-.09	.17	.12	—							
5. Father's education	-.07	.13	.01	.75***	—						
6. Number of siblings	.26	-.18	-.25	-.25	-.17	—					
7. Non-Muslim friends <sup>a</sup>	-.19	.38*	.49**	.15	.16	.28	—				
8. Household goods <sup>b</sup>	-.03	.10	.25	.25	.24	-.01	.39*	—			
9. Travel outside Israel	.09	.32*	.29 <sup>†</sup>	.55***	.41**	-.29 <sup>†</sup>	.52**	.48**	—		
10. Mobile technology <sup>c</sup>	-.06	.17	.09	.31*	.33*	-.39*	.30*	.55***	.43**	—	
11. Boys friends on Facebook	-.21	.28 <sup>†</sup>	.56***	.11	.12	-.26	.80***	.44**	.45**	.33*	—
12. Wears headscarf	.21	.28 <sup>†</sup>	-.66***	-.27	-.12	.25	-.49**	-.50**	-.34*	-.27	-.60***

Note. Correlations are rank correlations calculated with Spearman's rho.

<sup>a</sup>Jewish, Christian, or Druze.

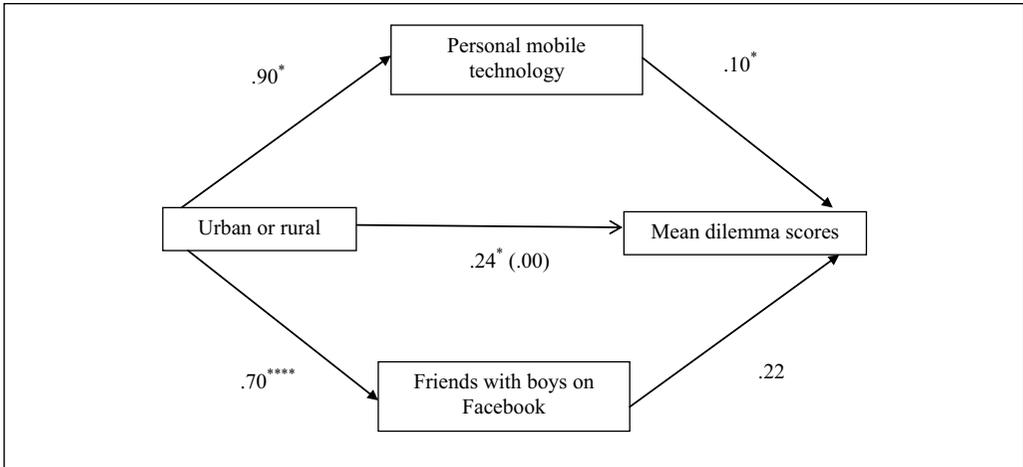
<sup>b</sup>Sum of the following items at home: computers, televisions, and vehicles.

<sup>c</sup>Number of the following: personal laptop, personal cellphone, and Internet on cellphone.

<sup>†</sup> $p < .09$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Gesellschaft-adapted values in response to the dilemmas,  $\beta = .24$ ,  $t(36) = 2.44$ ,  $p = .02$ , without controlling for the sociodemographic variables, the direct effect of urban residence,  $\beta = .00$ ,  $t(36) = 0.38$ ,  $p = .99$ , is not significant when adding “personal mobile technology” and “friends with boys on Facebook” (see caption and horizontal line in Figure 1). Although both are related to urban residence and therefore could potentially be mediators, personal mobile technology is determined to be the sole significant mediator because, in addition to being predicted by urban residence,  $\beta = .90$ ,  $t(36) = 2.65$ ,  $p = .012$ , it alone continues to significantly predict mean dilemma score,  $\beta = .10$ ,  $t(36) = 2.33$ ,  $p = .026$ , when controlling for the other sociodemographic variable and urban–rural residence. “Friends with boys on Facebook” is predicted by urban residence,  $\beta = .70$ ,  $t(36) = 6.10$ ,  $p = .000$ , but its relationship with mean dilemma score,  $\beta = .22$ ,  $t(38) = 1.64$ ,  $p = .11$ , is not significant when controlling for urban–rural residence and personal mobile technology. This pattern of findings suggests that the relationship between urban residence and Gesellschaft-adapted values is fully mediated by personal mobile technology.

Confirming that this mediation was significant, the 95% CI of the compound path from urban residence through personal mobile technology to Gesellschaft-adapted values is significant ( $\beta = .09$ ,  $CI = [.01, .23]$ ) as indicated by the CI that does not include 0. Thus, the reason that those from the urban group have mean dilemma scores tending more toward Gesellschaft adaptation than do those of the rural group is explained by greater ownership of personal mobile technology. This result confirmed H3 concerning sociodemographic mediation of the difference between the two groups.



**Figure 1.** Mediation model testing the role of sociodemographic variables in explaining the effect of urban versus rural residence on mean dilemma score.

*Note.* On the horizontal arrow,  $.24$  is the statistically significant effect of urban residence without considering any mediating variables. The number in parentheses ( $.00$ ) shows that the effect of urban Vs rural residence disappears when accounting for the mediating effect of “personal mobile technology” and “friends with boys on Facebook.”  
 $*p < .05$ .  $****p < .0001$ .

### Cross-Generational Analysis

A significant one-way ANOVA,  $F(2, 57) = 4.54$ ,  $p = .015$ ,  $\eta_p^2 = .14$ , indicated mean differences in dilemma scores between the three generations among the rural group in the village. Bonferroni post hoc comparisons showed that the adolescent girls were significantly more likely ( $p = .05$ ) to have mean scores ( $M = 2.18$ ,  $SD = 0.36$ ) in the Gesellschaft direction than were their grandmothers ( $M = 1.88$ ,  $SD = 0.30$ ). Although the adolescents' scores were more in the Gesellschaft direction than their mothers' ( $M = 1.97$ ,  $SD = 0.32$ ), the difference was not significant ( $p = .14$ ). In terms of significance, the scores of the mothers and grandmothers showed no difference ( $p = 1.00$ ). Thus, H2 concerning the intergenerational change in values in the Gesellschaft direction was partially confirmed.

To determine whether mean difference might be explained by any of the sociodemographic characteristics, a mediation analysis tested whether any or all sociodemographic variables that were correlated both with generation and the mean dilemma score variables mediated the relationship between generation and mean dilemma score. Table 4 shows the variables that were found to be correlated with either generation or dilemma score using Spearman's rank correlation, suitable for the small sample. Parallel to the strategy used in the urban–rural comparison, the mediation model included generation and all the sociodemographic variables correlated with both generation and mean dilemma score: mother's education, father's education, number of siblings, wearing a headscarf, and having personal mobile technology. Collinearity statistics (VIF and tolerance) indicated that there was no multicollinearity among the predictor variables with the VIF for each variable  $< 5$  and tolerance  $> .02$ .

Table 5 shows the correlations among all of the sociodemographic variables that are related to either generation or dilemma score. The general pattern of significant correlations among all the variables in the table validates the existence of two contrasting sociodemographic ecologies: Positive inter-correlations among mother's education, father's education, non-Arabic TV, and mobile technologies confirm the existence of a Gesellschaft complex of sociodemographic features. On the contrary, the significant association among a large number of siblings, wearing a

**Table 4.** Sociodemographic Characteristics Found Correlated With Either Generation or Mean Dilemma Scores.

Sociodemographic characteristics	Generation	Dilemma scores
Mother's education	-.77***	.28*
Father's education	-.78***	.34*
Number of siblings	.53**	-.31*
Non-Muslim friends <sup>a</sup>	-.30*	.25
Watches non-Arabic TV	-.48***	.24
Has personal mobile technology <sup>b</sup>	-.27*	.55***
Responds to five calls to prayer	.48***	-.13
Wears a headscarf	.37**	-.27*

Note. Correlations are rank correlations calculated with Spearman's rho. Daughter = Generation 1, mother = Generation 2, grandmother = Generation 3.

<sup>a</sup>Christian.

<sup>b</sup>Number of the following: laptop, cellphone, and Internet on cellphone.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 5.** Correlations Among Sociodemographic Characteristics in the Village.

	1	2	3	4	5	6	7
1. Mother's education	—						
2. Father's education	.67***	—					
3. Number of siblings	-.62***	-.39**	—				
4. Christian friends	.16	.26*	-.11	—			
5. Non-Arabic TV	.37**	.41**	-.21	.04	—		
6. Mobile technology <sup>a</sup>	.32*	.33**	-.18	.17	.25*	—	
7. Wears headscarf	-.36**	-.26*	.33*	-.13	-.17	-.19	—
8. Five calls to prayer	-.44***	-.36**	.35*	-.08	-.03	-.19	.43**

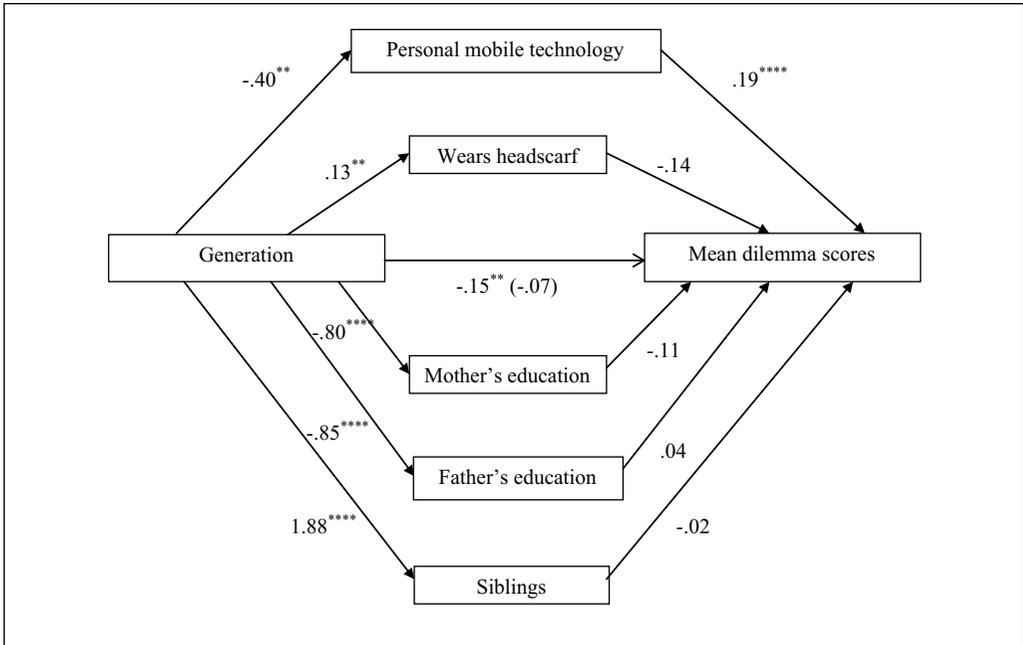
Note. Correlations are rank correlations calculated with Spearman's rho.

<sup>a</sup>Number of the following: laptop, cellphone, and Internet on cellphone.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

headscarf, and observing five daily calls to prayers confirms the existence of a *Gemeinschaft* complex of sociodemographic features.

The regression, with generation as the independent variable and the sociodemographic variables as potential mediators, was significant,  $F(6,53) = 6.00$ ,  $p = .000$ , explaining 40% of the variation in this model. Figure 2 separates the effect of the potential predictors. Once again, personal mobile technology is the only significant mediator, explaining the relationship between generation and mean dilemma score, with higher use of mobile technologies predicting more *Gesellschaft*-adapted values. As shown in Figure 2, although the total effect of generation on dilemma scores,  $\beta = -.15$ ,  $t(53) = -2.96$ ,  $p = .005$ —that is, generation's prediction of dilemma scores without controlling for the sociodemographic variables—is significant, the direct effect of generation,  $\beta = -.07$ ,  $t(53) = -0.85$ ,  $p = .40$ , is not significant when adding personal mobile technology and the other non-significant predictors. This suggests the relationship between generation and dilemma score is fully mediated by personal mobile technology, just as the direct effect of generation on dilemma score became non-significant when controlling for personal mobile technology; and personal mobile technology continues to significantly predict mean dilemma score when controlling for the other variables,  $\beta = .19$ ,  $t(53) = 4.26$ ,  $p = .000$ . Whereas all of the



**Figure 2.** Mediation model testing the role of sociodemographic variables in explaining the effect of generation on mean dilemma score.

*Note.* On the horizontal arrow, .15 is the statistically significant effect of generation without considering any mediating variables. The number in parentheses (.09) shows that the effect of generation becomes statistically insignificant when accounting for the mediating effect of all the sociodemographic variables shown in the model. As an individual mediator, only “personal mobile technology” is statistically significant.

\*\* $p < .01$ . \*\*\*\* $p < .0001$ .

other sociodemographic variables were predicted by generation, and earlier found to be correlated with mean dilemma score, when controlling for each of the other variables, none significantly predicted mean dilemma score.

To ascertain whether personal mobile technology is indeed a significant mediator between generation and mean dilemma score, the 95% CI of the indirect effects was obtained. The indirect effect (i.e., generation on dilemma score through the mediator of personal mobile technology) is significant ( $\beta = .08$ ,  $CI = [.02, .17]$ ) as indicated by the CI that does not include 0. Thus, the tendency for mean scores to trend toward more *Gesellschaft* viewpoints from older to younger generations is explained by greater ownership of personal mobile technology across generations. The mediator of the intergenerational change is the same as the mediator of the difference between rural and urban high school girls and is in accord with H3, which predicted mediation by sociodemographic shifts. The results point to one particular sociodemographic factor out of a set of inter-correlated shifts: the growth of mobile technology use.

## Discussion

All three of our hypotheses were basically confirmed:

1. *Urban adolescents endorsed significantly more Gesellschaft-adapted values than did rural adolescents.* These data correspond to findings from two studies by Manago that used interviews to capture subjective experiences of Maya women undergoing the shift

from *Gemeinschaft* to *Gesellschaft* environments: Maya women, both middle-aged and emerging adults, were aware that their move from village to city meant that they could now have more equality with men in various ways and could select their own romantic partners based on attraction and compatibility (Manago, 2012, 2014; Manago & Greenfield, 2011). The emphasis on gender equality and personal choice reflect more *Gesellschaft*-adapted, individualistic values.

2. *Each generation in the rural setting had more Gesellschaft-adapted values than the one before it.* However, only the difference between the adolescent generation and the grandmother generation was statistically significant.

Using the same basic materials in a Zinacantec Maya community in Chiapas, Mexico, Manago (2014) found that each generation of three successive generations had significantly more *Gesellschaft*-adapted values. In the current study, the mothers are a transitional generation, connecting in their values to both their daughters and their mothers, not significantly different from either. However, it could be argued that, in Maya Chiapas, the social change was much greater across the generations, leading to statistically significant differences between each generation. A meaningful indicator of that situation is the fact that Zinacantec Maya grandmothers had no formal education whatsoever, the mothers averaged 1 year of formal education, and the daughters were attending high school. Hence, the educational disparity among Zinacantec generations was much greater than in the present sample where 14 of the mothers had a high school education and 1 had a college education, while 6 of the grandmothers had an elementary education. Moreover, in the Zinacantec sample, involvement in a market economy became more common between the grandmother and mother generations, which appeared to drive value differences between these two generations. In contrast, the occupations of fathers and grandfathers in the present study were essentially the same.

Although the mothers in the Arab sample have considerably more education than the grandmothers, our sense is that what matters more in this ethnocultural group is greater contact with the wider world, so that the village environment is a more significant influence than schooling. In the mothers' time in school, the village was even more isolated than today. After discussing H3, we will come back to further explanation of why, among Arabs in Israel, there was no significant difference between the mothers and the grandmothers.

3. *Group differences were mediated by the sociodemographic environment, notably by ownership of personal mobile technology.* We further hypothesize that this finding explains why there was no statistically significant difference between the mothers and the grandmothers: In Israel, the major driver of *Gesellschaft*-adapted values is communication technologies, and this is a social change that has occurred as early as adolescence only in the present generation. Indeed, in the mothers' youth, there was considerably less ownership of all communication technologies. This whole pattern of findings points to adolescence as an important period for value change.

Among all of the sociodemographic variables that showed variation between the generations and between rural and urban adolescents, possession of personal mobile technology best predicted differences in the mean dilemma scores. Although according to Greenfield's theory of social change, increased possession of personal technology would be expected to go hand-in-hand with parents' education, ownership of household goods, and travel—indeed, this is shown in the correlation tables—we argue that it is contact with the wider world afforded by personal mobile technology that, in this population, is critical to the shift in values. Those with the means to have personal, flexible, even fleeting contact with the wider world—sociodemographic characteristics of a more *Gesellschaft* ecology—tended to express individualistic and

egalitarian values adapted to a Gesellschaft ecology. As most of the parents in both the city and the village had at least a high school education, mobile technology appeared to be a more decisive factor than parental education in adolescents' exposure to and shift toward relatively more Gesellschaft-oriented values.

### *Limitation*

Ideally, we would have had a multiple-generation urban sample for comparison with the three-generation rural sample. However, the urban environment makes recruiting such a sample virtually impossible because of dispersion of families in the city and urban life more generally. It seemed less necessary than the multiple-generation family in the rural environment, given evidence in other parts of the world that intergenerational shifts in value-guided behavior is greater in rural than urban areas (Garcia, Rivera, & Greenfield, in press).

### *Theoretical Implications*

One interesting theoretical point is the tenet of Greenfield's (2009) theory that each sociodemographic factor is equipotential and that the factor that will best explain value shift will be that environmental element that is changing most rapidly at that particular moment. In Manago's (2014) intergenerational comparison utilizing a culturally equivalent set of scenarios, she was able to explain the more Gesellschaft perspective of the mothers compared with the grandmothers by the intergenerational ecological shift from subsistence and agriculture to money and commerce. In contrast, the explanatory factor for the more Gesellschaft-adapted perspective of the adolescent Maya girls in her sample was the experience of formal education. Like their mothers, they had grown up in a commercial economic environment; but, unlike their mothers, they were the first generation in their village to have the opportunity to attend high school. Our study in Israel showed basically the same intergenerational change in values as that demonstrated by Manago in Maya Chiapas. Yet, we also found a third sociodemographic factor (one that was much less developed in the Maya world)—communication technologies—to be responsible for the shift.

In this way, this new study further generalizes and confirms the equipotentiality of Gesellschaft elements to move development in a common direction, thus further strengthening in an important way the theory that stimulated the present research.

## **Appendix A**

### *Socio-Demographic Questionnaire*

1. Age? Grade in school?
2. Wearing a headscarf? (Observation)
3. What kinds of work do you do to help your parents at home? Do you work outside the home? What kind of work is it and where?
4. What kind of work does your mother do?  
(a) employee (b) agriculture (c) independent (d) housekeeper (e) other \_\_\_\_\_
5. What does your father do?  
(a) employee (b) agriculture (c) independent (d) housekeeper (e) other \_\_\_\_\_
6. Mother's education  
(a) none (b) non-academic (c) primary school (d) secondary school (e) BA (f) MA
7. Father's education  
(a) none (b) non-academic (c) primary school (d) secondary school (e) BA (f) MA

8. Where did your mother grow up? Where did your father grow up?
9. How many siblings do you have? \_\_\_ How many older brothers? \_\_\_ Older sisters? \_\_\_
  - a. Do you have any older siblings who finished high school? In university or finished university?
  - b. Any older siblings who work outside the village/city?
10. Do any of your siblings do this kind of work?
  - (a) employee (b) agriculture (c) independent (d) housekeeper (e) other \_\_\_\_\_
11. How often do you travel outside the village? Out of the city?
12. How often does your father/mother travel outside the village? Out of the city?
13. Do you have Jewish friends, Christian or Druze friends?
14. Have you traveled outside Israel and where?
15. Which of the following is in your house?
  - a. Do you have your own private bedroom? If not, how many people do you share your bedroom with?
  - b. How many rooms total in your house?
  - c. How many vehicles does your family own?
  - d. How many televisions?
  - e. How many computers in the home? (including your own)
  - f. Do you have your own personal laptop?
  - g. Do you have your own cellphone? Can you access the Internet from your cellphone?
16. Which kind of cable channels do you watch?
  - a. Do you watch the Arabic channels?
  - b. Do you watch the Hebrew channels?
  - c. Do you watch the English channels?
17. What are the shows/programs that you follow?
18. Who are your favorite music artists?
19. What are your favorite movies?
20. Do you have Internet in your house?
  - a. What websites do you visit the most?
  - b. Do you have a Facebook profile or another social networking site profile?
  - c. Do you have friends on your Facebook network (or other social networking site) who are outside your school in Israel? Outside Israel?
21. Do you have friends on Facebook who are boys?
22. Are you engaged?
23. Do you want to continue your studies after high school? Where?
24. Do you answer the five calls to prayer?

## Appendix B

### *Dilemma Task Interview*

[The questions that follow each dilemma are those relevant to the analysis in this study. Additional follow-up questions were asked for a qualitative analysis not reported here.]

1. *Men walk in front of women.* I have a friend named Samer, who used to live in (name of the village) and now he lives in (name of the city) because he is studying at the university. He told me that he had gone to visit his married siblings A'del and Eman in the village. When they went to go to the store, Eman walked behind A'del and Samer. Samer told Eman to walk beside them because men and women are equal. But Eman didn't want to walk side-by-side

with A'del and Samer because she would be embarrassed. Eman says, "It's better that I walk behind you, not at your side, because that is how we are accustomed to things as women, to walk behind men."

Which is better, what Samer says or what Eman says? Why?

2. *Who cooks at home?* There is a family in (name of the village), Samer and his wife Sahar. They have three children. Samer's mother also lives with them. Sahar has relatives in Nazareth who want Sahar to work for them in the mornings, and they would pay her. But Samer doesn't like the idea. He says, if she goes to work, who is going to cook at home then? Sahar says that Samer's mother can cook. But Samer says that this is not the same. It's better that the woman of the house—the wife—cooks.  
Which is better, what Samer says or what Sahar says? Why?
3. *Helping with housework.* Samer and Sahar are a married couple. They have three children. Samer works every day outside the house. Sahar works every day inside the house. Sometimes Sahar asks Samer to help her with the housework. But, Samer always refuses, and says, "The wife should do the housework alone."  
Do you agree with Sahar or do you agree with Samer? Why?
4. *Boys and girls talk.* Samer and Sahar are students in high school in (name of the village). They help each other study and when there is a break Samer and Sahar have conversations with each other. When school is over, Samer and Sahar return home at night walking together with the rest of their classmates, but they don't return directly home, they stay talking together. Samer and Sahar say they are only friends.  
What do you think, is it okay that they are friends? Why?
5. *Fiancés.* There is a girl named Sahar who is 18 years old and lives with her family in (name of the village). There is a boy named Samer who is 20 years old and also lives with his family in (name of the same village). Samer and Sahar are neighbors. Once, Samer's grandmother saw Sahar outside. She decided she wanted Sahar for her grandson Samer. So, Samer and Sahar got to know each other, and they fell in love and got engaged. Samer asked Sahar's father permission to talk formally with Sahar on the phone. Sahar's father gave him permission to talk to her. Samer also began to visit Sahar at her home. Sometimes when they went out, Samer and Sahar would walk together holding hands. After a few months, Samer and Sahar broke up. Sahar told her father that they did not love each other anymore, and that she might want to meet other boys. Sahar's parents want Samer and Sahar to get married, but Samer and Sahar do not want to. Sahar's mother is very sad and worried because she thinks that if Sahar doesn't marry Samer she won't be able to find another husband.  
Which is better, what Sahar says or what her parents say? Why?
6. *Leave village for city.* One day in the high school in (name of the village), a teacher named Samer gives a lecture to the students in the high school about how they should work hard in school so that they can go to a university and find a good job outside the village. Samer gives the students advice that they should think for themselves about what they want to do in life and not be forced to do what their parents tell them they should do. Another teacher named A'del thinks differently than Samer, he tells his students that it's better that they stay in (name of the village) because their families live here and that they should follow the advice of their parents about what kind of work they should do. Moreover, A'del tells his students that if they leave (name of the village), their parents will not like it and will miss them.  
Which is better, what Samer says or what A'del says? Why?

7. *Professional woman.* A young woman named Sahar is 25 years old and lives with her family in (name of the village). She travels daily to Tel-Aviv to attend classes at the university and also works in Tel-Aviv. There she has gotten to know many people from different places. Sahar tells her parents, "I like to leave for work, I like knowing a lot of different people, I like doing whatever I want to do, also I like it that I don't have any particular time I need to leave or come home, I like how I am living because I don't have children or a husband to be responsible for, I like being free." Sahar likes leaving for work and doesn't want to get married, but her parents are worried because their daughter still doesn't want to get married. They say that it is bad that a woman doesn't marry and that one can't stay alone forever. Is it better what Sahar says or what her parents say? Why?
8. *Girl has fun with friends.* Sahar is a girl studying in the high school in (name of the village). She likes to go out with Eman, Rania, and other friends from school. Her mother doesn't like this, she wants Sahar to stay at home with her father, older sisters, brothers, sister-in-law, and grandmother. But Sahar likes to go out with her friends, for that reason she says, "I like to go out and be with my friends from school, I get bored always being with my family." Sahar's mother is very concerned about what Sahar says. Which is better, what Sahar says or her mother? Why?
9. *Headscarf.* Sahar, 18 years old, lives with her family in a village. Her parents are religious people. Her father wants Sahar to wear a headscarf because he is a faithful man, and now Sahar is old enough and she should wear a scarf on her head. Sahar doesn't want to put on a scarf. Her mother told her that she had put on a headscarf when she was Sahar's age. And she had to do it. Sahar refused to put on a headscarf. Which is better, what Sahar says or what her Mother says? Why?

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### Note

1. All of the statistical information regarding the Arab and Jewish populations in Israel and sociodemographic characteristics are based on documents available on the website of the Israel's Central Bureau of Statistics, [http://www1.cbs.gov.il/reader/cw\\_usr\\_view\\_Folder?ID=141](http://www1.cbs.gov.il/reader/cw_usr_view_Folder?ID=141), some of which is summarized by the Myers-JDC-Brookdale Institute and can be found on their website, <http://brookdale.jdc.org.il/?CategoryID=182>

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