

Implications of 43 Years of Sociodemographic Change in Mexico for the Socialization of Achievement Behavior: Two Quasi-Experiments

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Abstract

In this article, we explore theory-driven hypotheses linking ecological change with changing patterns of socialization. These studies are part of a larger project begun by Garcia in 2004; it aims to assess the effects of social change on Millard Madsen's experimental findings concerning social behavior and socialization strategies in different regions of Mexico in the 1960s and 1970s. The present two studies apply Greenfield's theory of social change and human development to maternal socialization in San Vicente, Baja California, Mexico. As San Vicente's population, commercial activity, modern technology, and connections (through immigration and television) to the United States grew, maternal socialization shifted. Mothers' behavior as their children played two beanbag games developed by Madsen and Kagan revealed that, over a 43-year period, San Vicente mothers became less giving while augmenting their use of achievement-promoting behavior in several ways: In Study 1, mothers in 1972 were more generous in giving their children rewards, compared with mothers in 2015; the 2015 mothers had also become more selective in preferentially rewarding children's successes rather than failures. In Study 2, mothers in 2015 set higher goals for their children than did mothers 43 years earlier.

Keywords

cooperation, competition, maternal behavior, socialization, Mexico, social change, culture

In this article, we explore theory-driven hypotheses linking ecological change with changing patterns of maternal socialization. What is unique about the present studies is that they are cross-temporal quasi-experiments that document, over a period of 43 years, how children's learning environments shift under changing sociodemographic conditions. Two studies apply Greenfield's (2009) theory of social change and human development to maternal socialization, the provision of informal learning environments. A central claim of the theory is that different value systems,

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Table 1. Sociodemographic Transformation in San Vicente, Baja California.

Madsen (1971); Madsen & Kagan (1973)	INEGI (2010): field observations, 2015:
Population: 800	Population: 4,362
Agriculture	Markets
“Simple houses”	Sophisticated houses
No modern services	TV
Dirt floors	Manufactured floors
No potable water	Potable water
No bathrooms	Bathrooms
No electric service	Electric service
Large extended families	Small nuclear families

Note. The sociodemographic data are from Mexico's 2010 census and from field observations in 2015. Mexico's census is every 10 years; this is therefore the most recent official information. INEGI = Instituto Nacional de Estadística Geográfica e Informática, the Mexican census bureau.

learning environments, and behaviors are adapted to different types of ecology. The ecological level of the theory is based on the ideal types of *Gemeinschaft* (community) and *Gesellschaft* (society; Tönnies, 1887/1957). Some important features of *Gemeinschaft* communities are that they are small-scale rural villages, have subsistence economies, are quite isolated, and are relatively poor; most social relationships are lifelong. *Gesellschaft* societies, in contrast, are large-scale urban environments, have developed commercial economies, are connected to the outside world through technology and travel, and are relatively wealthy; most social relationships are transitory.

Cooperation and giving are adaptive in a *Gemeinschaft* environment where people work together in agriculture for basic subsistence needs, and reciprocity is a key to lifelong relationships (e.g., Cancian, 1992; Greenfield, 2013; Madsen & Shapira, 1970; Madsen, 1971). Competition, individual achievement, and materialism are adaptive in a money-based *Gesellschaft* environment where formal education, as well as occupational placement, often involves competition based on individual achievement (e.g., Greenfield, 2013; Vasquez-Salgado, Greenfield, & Burgos-Cienfuegos, 2014).

The key corollary of this conceptual scheme is that, as social and ecological environments shift from more *Gemeinschaft* to more *Gesellschaft*, there will also be a shift away from the importance of cooperation and generosity toward a greater focus on competition, individual achievement, and material reward (Alcalá, Rogoff, Mejía-Arauz, Coppens, & Dexter, 2014; Vasquez-Salgado et al., 2014).

Sociodemographic Change and Child Behavior Change in San Vicente, Baja California

Table 1 summarizes the radical sociodemographic change that had occurred in San Vicente between the two time periods in which data were collected. Very clearly, San Vicente had transitioned from a primarily *Gemeinschaft* environment to a primarily *Gesellschaft* one. On the level of social development, children became less cooperative and more competitive during this period of rapid social change (Garcia, Rivera, & Greenfield, 2015).

Implication of Changing Sociodemographics for Maternal Socialization: Reward Allocation

How do such changes come about? What kind of proximal mechanisms mediate between large-scale social change and shifting patterns of child behavior? The present studies explore changes

in maternal behavior to address this issue. We do so by means of two controlled studies of maternal socializing behavior in San Vicente at two different time points 43 years apart.

In these two studies, we focus on maternal strategies for allocating rewards. The overarching idea is that mothers will be more generous with rewards in a *Gemeinschaft* environment and will allocate rewards to maximize their children's achievement and/or material rewards in a more *Gesellschaft* environment. Performance-contingent rewards enhance achievement motivation (Stipek, 1996), so mothers who want to maximize achievement will use performance-contingent rewards. In contrast, where individual achievement and material rewards are less important, in more *Gemeinschaft* environments, mothers will be less selective in allocating rewards (Study 1; Shapira, Lomranz, & Todd, 1977).

A second thesis is that mothers set higher goals for their children's achievement in a *Gesellschaft* environment where personal achievement matters than in a *Gemeinschaft* environment where the welfare of family and community is more important (Study 2; Shapira et al., 1977).

Study 1

The goal of Study 1 was to test the hypothesis that mothers in 2015 would be less giving and put greater emphasis on individual achievement than in 1972. This general hypothesis led to two specific hypotheses.

Hypotheses

Hypothesis 1: Independent of their children's performance, more mothers would be motivated to give maximum rewards in 1972 than in 2015. This hypothesis was tested in two ways: (a) by comparing the number of mothers in the two historical periods who gave their children all the rewards available, and (b) by comparing mean number of rewards given in response to success across the two time periods and mean number of rewards given in response to failure across the two time periods.

Hypothesis 2: As an indication of increasing differentiation between maternal response to reward and maternal response to failure, the decline in rewards for failure trials will be steeper than the decline in rewards for success trials.

Method

Participants. This study makes a historical comparison between data collected in about 1972 (published in 1973) and data collected in 2015. In both periods, the participants, recruited through school networks, were from San Vicente, a small town in Baja California. In 1972, 12 mother-child pairs were examined; in 2015, participants consisted of 14 mother-child pairs. In both time periods, children were between 6 and 8 years old, half boys, half girls. As there were no gender differences at either time period, gender did not enter into the analyses.

Task and procedure. Exactly as described by Madsen and Kagan (1973) in this journal, children in 2015 had to throw a small beanbag at 10 targets placed on the ground; that is, each child had 10 trials. The targets were 20 cm wood squares separated by 60 cm from each other (see Figure 1). The mother-child dyads were told that the child should throw the beanbag 10 times at the squares, beginning with the nearest and then the second, and so on. Figure 1 shows a failure where the beanbag does not land on a square. The child was able to throw to the next square only if they succeeded in hitting the previous one; if the child failed, he or she had to repeat the throw to the same target until he or she succeeded. The nearest square was 60 cm away from the child. Mothers were asked to encourage their children to advance to the farthest target possible. Ten marbles were given to the mothers; they were then told that they could give marbles to their children after each throw, as many



Figure 1. The experimental setup for Study 1 in 2015 from the participant's perspective.
 Note. This child was aiming for the third square, but missed it.

as they wished. Each mother was asked how many marbles she wanted to give to her son/daughter after each throw, and the marbles were placed in a container next to the child.

Results

Hypothesis 1. As predicted, mothers in 2015 were less likely to maximize rewards. In 1972, 11 out of 12 gave all 10 marbles by the end of the procedure (10 trials). In 2015, only six out of 14 mothers had given all 10 marbles by the end of the procedure. This difference was statistically significant ($p = .014$, $N = 26$; Fisher's Test, Preacher & Briggs, 2001). Also supporting Hypothesis 1, Figure 2 shows the predicted and statistically significant historical decline in maternal rewards in response to both success ($t = 2.73$, $df = 24$, $p < .05$; $d = 1.07$, a large effect size) and failure ($t = 6.12$, $df = 24$, $p < .001$; $d = 2.41$, a very large effect size of more than 2 standard deviations).

Hypothesis 2. Supporting Hypothesis 2, Figure 2 also shows visually that, as predicted, the decline between 1972 and 2015 in number of rewards given in response to failure trials is steeper than the decline in number of rewards given in response to success trials. The differential magnitude of these two declines is described by the fact that the confidence intervals (CIs) for the two effect sizes overlap just slightly (CI for historical decline in rewarding successful trials is between -2.4 and -1.89 ; CI for historical decline in rewarding failure trials is between -1.37 and -3.42).

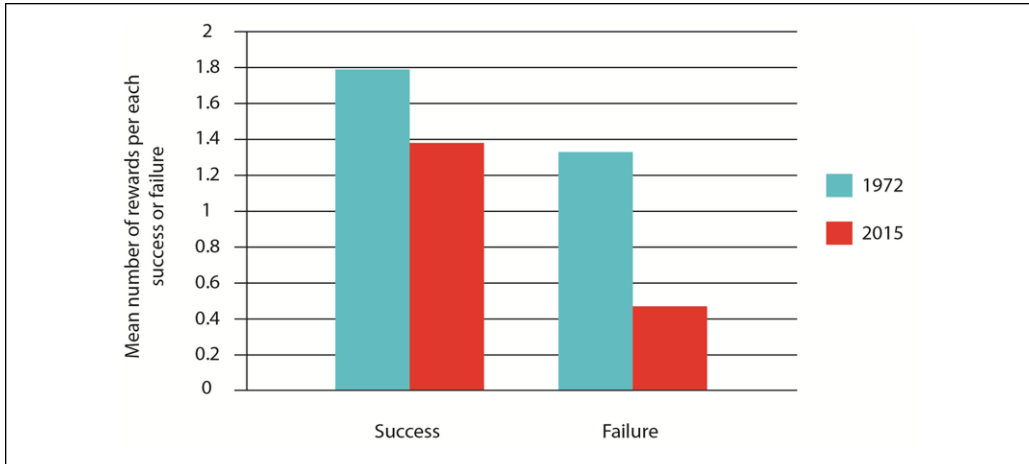


Figure 2. Mean number of marbles given by mothers in response to each success and failure in 1972 and 2015.

Note. Mothers had a total of 10 marbles to give; this graph is based on those trials in which mothers still had marbles left to give.

Study 2

The aim of Study 2 was to focus on mothers' achievement goals for their children. The general hypothesis was that achievement goals would become higher (more difficult goals) between 1972 (Madsen & Kagan, 1973) and 2015.

Method

Participants. Eighteen mother–child pairs (six boy–mother pairs and 12 girl–mother pairs) were tested in 2015, whereas 12 pairs were analyzed in the 1973 publication (six boy–mother pairs and six girl–mother pairs). All participants, recruited through school networks, were from San Vicente but did not participate in Study 1. The ages of the participants were between 6 and 9 years old in both time periods.

Task and procedure. The materials and procedure in 2015 were exactly as described by Madsen and Kagan (1973) in this journal. Four squares with the same shape and materials as in Study 1 were placed in a line on the ground separated by 60 cm from each other (Figure 3). A beanbag was given to each mother–child pair, and the child was told that he or she would make 10 throws to the squares. Then, the child was instructed that the mother would select the target which her son/daughter should hit in each throw and that the number of prizes for each success would depend on the target chosen by the mother. The nearest square was rewarded by one marble, the second by two, the third by three, and the furthest by four. The first two were considered easy, and the second two hard.

Results

The general hypothesis was tested by dividing goals into easy (low achievement) and hard (high achievement). Figure 4 shows that the pattern of results was as hypothesized: The number of easy goals set by the mothers declined; the number of hard goals increased. Using a chi-square test (Preacher, 2001), we compared total frequencies of easy goals (one or two squares away) and



Figure 3. The experimental setup in 2015 for Experiment 2 from the participant's perspective. Note. Here, the child has succeeded in landing the beanbag on the second square.

hard goals (three or four squares away) set by mothers at the two historical periods. The proportion of hard goals increased significantly ($\chi^2 = 11.62$; $df = 1$; $p = .0007$).

General Discussion

It makes sense that, as academic achievement and material reward become increasingly important in a *Gesellschaft* world (e.g., Rogoff, Correa-Chávez, & Cotuc, 2005) and as giving behavior becomes less adaptive, socialization strategies would change accordingly. Two beanbag games developed by Madsen and Kagan (1973) were revealing. As the environment moved in the *Gesellschaft* direction, mothers in San Vicente, Baja California, gave fewer rewards to their children, particularly in response to failure (Study 1).

In Study 2, socialization strategy was assessed more directly, by measuring mothers' goal-setting preferences. However, unlike the first study in which rewards could be allocated independently of achievement, achievement and reward motivation are not separable in Study 2; however, these two motivations are intrinsically interrelated in a *Gesellschaft* environment. As predicted, in 2015, San Vicente mothers set higher goals for their children than did mothers in 1972. As San Vicente's population, commercial activity, modern technology, and connections (through immigration and television) to the United States grew, mothers shifted their strategies for allocating rewards and setting goals to ones that were more consonant with maximizing children's achievement and material rewards.

Limitations

The major limitation was the absence of original data for Time 1, 1972. For Experiment 1, this situation led to the use of Time 2 data to estimate standard deviations at Time 1 in the calculation of effect sizes and *t* tests, a potential source of measurement error. Although sample size is small,

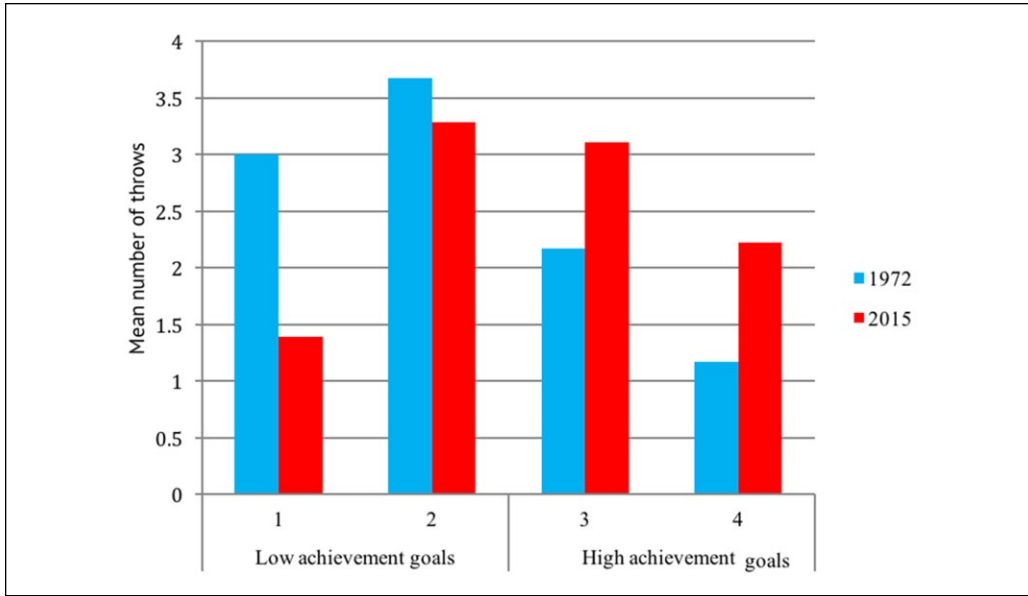


Figure 4. Low achievement goals decrease in 2015; high achievement goals increase.

power was sufficient to demonstrate statistically significant crosstemporal changes in both studies. This was because cohort differences were so large. However, the study may have been underpowered when testing gender differences, but gender was not our focus.

Another limitation is the absence of individual sociodemographic data—particularly mothers' schooling (LeVine, LeVine, Schnell-Anzola, & Dexter, 2012)—that would have allowed us to construct a causal model for the observed changes in maternal behavior. Thus, we make an inferential leap in relating the crosstemporal change in maternal behavior to larger societal changes. However, the inferential leap is supported by Shapira et al.'s (1977) findings in two different ecologies in Israel: Using the exact same tasks, mothers' behavior in agricultural communes (kibbutzim) paralleled that of the 1972 San Vicente mothers, living in a more rural agricultural environment, whereas the behavior of urban Israeli mothers paralleled that of the 2015 San Vicente mothers, living in a more urban, commercial environment than their 1972 counterparts.

As is usual in recruiting mother–child pairs in any country, sampling was based on willingness and availability of participants. It was considered that replicating Madsen and Kagan's (1973) sample sizes would be adequate; this goal was exceeded for both studies, particularly Study 2. We estimate that, for Study 1, 40% of total San Vicente population in the target age group was included in the 1972 sample. Because of population growth (see Table 1), our estimate is that the 2015 sample contained about 22% of the population in the target age group. For Study 2, our estimate is that 30% of total population in the target age group was included in the sample in 1972. Again, because of population growth, we estimate that the 2015 sample contained about 21% of the target population. Because San Vicente is such a small town (see Table 1), even a sample of 21% or 22% of the target population constitutes a larger proportion than is usual in urban environments, making sampling bias less likely.

Conclusion

This research is a follow-up to the earlier publication showing the decline of cooperation and rise of competition in child behavior in the same town in roughly the same period of time (Garcia et al.,

2015). It indicates that changes in children's learning environments can help explain how individualistic behavior grows as society moves in the *Gesellschaft* direction. The research points to proximal mechanisms in children's socialization that reflect changing cultural values under conditions of social change (Grossmann & Varnum, 2015; Hamamura & Xu, 2015; Inglehart, 1997).

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Authors' Note

We would like to note a very special circumstance surrounding the publication of this article in *Journal of Cross-Cultural Psychology (JCCP)*: It is being published in the same journal in which Millard Madsen published the historical baseline article in 1973. We have replicated procedures reported there in the same community 43 years later, and this historical comparison constitutes the content of the present article. Thus, our first wave of data was extracted from an article by Madsen and Kagan (1973).

Declaration of Conflicting Interests

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