

## Cultural Change, Human Activity, and Cognitive Development

### Commentary on Gauvain and Munroe

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#### Key Words

Cognitive development · Cross-cultural psychology · Societal change

I applaud Gauvain and Munroe for giving the issue of social change and human development center stage. The rapidity of social change in the contemporary world has made cultural and cross-cultural theories of human development that assume static cultures patently outmoded. I very much like the attention that Gauvain and Munroe give to the proximal changes in children's environments that mediate between more distal, macro features of the sociological environment and children's cognitive development.

While I very much like their general argument, I would like to engage with the authors on three issues.

The first issue is the following: I would like to see more attention given to the cognitive strengths that are developed in a subsistence village environment. Right now, the article reads as though industrialized societies have cognitively superior members (combined with equality in language acquisition). Yet the conclusion of cognitive superiority depends on what cognitive skills are measured and how they are measured. Most importantly, different cognitive skills are adaptive in different ecologies. Behavioral competencies develop earlier when they are adaptive and important in a particular ecological niche; each culture develops the skills it feels are important at a young age – this is the concept of culture-specific precocity [LeVine, 2010].

In line with this idea, Ashley Maynard and I demonstrated different cognitive precocities in a Zinacantec Maya community in Chiapas, Mexico and in Los Angeles [Maynard & Greenfield, 2003]. Thus, we found that a concrete operational understanding of spatial relations in a weaving context occurred at younger ages for Zinacantec Maya children compared with US children, especially for Zinacantec girls

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who knew how to weave. In contrast, a concrete operational understanding of spatial relations in a play-object context (using materials similar to those developed by Piaget) occurred at younger ages in the US sample than in the Maya sample. Thus, the subsistence activity of weaving developed its own type of cognitive precocity, while the activities of young people in industrialized societies developed its specific type of cognitive precocity. Each type of cognitive precocity was adapted to the activities that were normative in that environment.

Here is another example of cognitive adaptation to a subsistence village environment. One component of subsistence in the same Zinacantec Maya village was weaving clothes for self and family. In another study of cognitive development in the same community, we found that, in the cognitive domain of pattern representation, adolescent weavers, who had little or no formal schooling, constructed detailed thread-by-thread representations of woven patterns; in contrast, US college students constructed abstract representations that lacked detail [Greenfield & Childs, 1977; Greenfield, Maynard, & Childs, 2003]. The detailed Zinacantec strategy was adaptive for weavers who had to weave the patterns; at the same time, the abstract US strategy was adaptive for the abstract thinking required by college-level studies.

The second issue is more theoretical. I would like to offer a theory of social change and human development [Greenfield, 2009] as a way of integrating the interrelations of different sociodemographic variables, a goal put forth by the authors. These interrelations are intrinsic to the idealized sociological endpoints, termed after Tönnies [1887] 'Gemeinschaft' and 'Gesellschaft'. The former ideal type is a small, homogenous, isolated, low-tech, subsistence village; the sociodemographic characteristics are clearly interrelated to form a coherent social environment. The latter ideal type is a large, heterogeneous, industrialized society with significant intercourse with the outside world and with much greater wealth; similarly, these sociodemographic characteristics are interrelated to form a coherent social environment.

Gemeinschaft and Gesellschaft are terms that summarize the various environmental constructs that Gauvain and Munroe are working with and discuss in great depth in their article. My theory of social change and human development interrelates these constructs on the psychological plane by asserting that each characteristic of a Gesellschaft environment moves cognition in the same direction: towards increasing abstraction and construction of novelty; the sociodemographic characteristics are, in this sense, equipotential. In contrast, each sociodemographic characteristic of a Gemeinschaft environment moves cognition in the opposite direction towards increasing context dependence and replication of tradition. Thus, an important component of the theory is that the interrelated sociodemographic factors of commercial activity (contrasted with a subsistence way of life), urbanization, and formal education will each produce a more abstract cognitive style and one geared more to innovation.

I believe that this theory could be a parsimonious description and analysis of what Gauvain and Munroe [2009] have demonstrated in their research and in the theoretical framework presented in their article. For example, one of the tests in the research by Gauvain and Munroe was an embedded figures test, requiring abstraction in the sense that a figure must be mentally separated from its background. Another test involved exploration of novelty. Both of our theoretical frameworks are similar in terms of cognitive development and would make the same prediction: that

more industrial or *Gesellschaft* elements on the societal and individual level would improve performance, and these predictions were confirmed by the data reported by Gauvain and Munroe [2009]. It is therefore not surprising that we have similar views of the causes of the Flynn effect, the worldwide increase in IQ performance since the 1800s, in terms of the growth of education, technology, and urbanization [Flynn, 1987; Greenfield, 1998].

But what makes my theory of social change and human development particularly useful is that one and the same set of constructs is used to predict the impact of social change on processes of social development as is used to predict the impact of social change on cognitive development [Greenfield, 2009]. According to the theory, the changes in social development brought about by a more *Gesellschaft* or industrialized environment (the term used by Gauvain and Munroe) can be summarized as leading to greater individual independence. Thus, in the Zinacantec hamlet of Nabenchauk, we found that weaving learners had become more independent of their teachers in the apprenticeship process as mothers and daughters became more involved in textile commerce [Greenfield, Maynard, & Childs, 2003]: there had been a shift from weaving to make clothes for family and self to weaving to earn money. However, in a later study in Maya Chiapas, we found that two other sociodemographic shifts – moving to the city and participating in higher education – also led to an increase in the independent functioning of the individual [Manago & Greenfield, 2011].

Thus, each sociodemographic element that changed in the *Gesellschaft* direction – development of a commercial economy, urbanization, and formal education – produced demonstrably more independent individuals. By providing understanding and predictions concerning the impact of industrial-postindustrial *Gesellschaft* elements on social as well as cognitive development, my theory of social change and human development provides a useful overarching framework for the argument that Gauvain and Munroe make in their important and insightful paper.

The third issue has to do with losses that are produced by social change in the industrial-postindustrial or *Gesellschaft* direction. I do not think that these losses are sufficiently recognized in the target article. Indeed, this may be because losses are more obvious in the social than in the cognitive domain, and Gauvain and Munroe limit themselves to the cognitive realm. The greatest loss can be summarized as a loss of family closeness and interdependence. Increasing individual independence implies decreasing family closeness. For example, we found that Maya women who had moved to the city and established individual careers had also moved away from the multigenerational families of the village [Manago & Greenfield, 2011]. But we can see losses even in the cognitive domain. For example, a preference for abstraction is simultaneously a loss of attention to concrete detail [Greenfield, Maynard, & Childs, 2003]. As another example, when great value is placed on innovation, there is a loss of respect for tradition.

My last example comes from Gauvain and Munroe's discussion of children's question-asking, which they find positively correlated with features of industrial societies; the authors see question-asking as an unalloyed good. Yet in more *Gemeinschaft* environments, question-asking is a sign of lack of respect for authority [Delgado-Gaitan, 1994]; from this point of view, a gain in children's question-asking is a loss in their respect for authority, a valued attribute in a *Gemeinschaft* world. This is all to say that when we observe the impact of the dominant direction of social change

in our globalizing and globalized world, it is important to understand the losses as well as the gains.

Gauvain and Munroe have done a great service to the field through a detailed analysis of how specific features of industrial and postindustrial environments affect cognitive development. I hope that this commentary contributes to the perspective they develop by pointing out positive cognitive adaptations to subsistence village environments, by contributing a theoretical framework that can extend their analysis into social development, and by balancing their analysis of the cognitive gains from industrial and postindustrial environments with an understanding of both social and cognitive losses.

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