



Generational Differences

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Cohort Group of persons entering the environment at the same point or range in time.

Cross-Sectional Sequence Groups of persons assessed once, where at least two age levels are sampled at a minimum of two different measurement occasions.

Longitudinal Sequence At least two groups of persons assessed at least Sequence: twice over the same age range.

GENERATIONAL DIFFERENCES will be treated here from a psychological perspective, although attention will be called to the historical context of the concept as it evolved in both sociology and psychology. Moreover, generations will be differentiated from cohorts, and I will discuss the relevance of the literature on cohort differences to an understanding of generational differences. Methodological issues in the psychological study of generational differences and cohort differences will be considered. Examples of findings from the literature will draw largely on the author's Seattle Longitudinal Study (SLS), including findings on generational differences in cognitive performance, selected demographic characteristics, and perceptions of family environments.

I. SOCIOLOGISTS' AND PSYCHOLOGISTS' VIEWS OF GENERATIONS

The concept of generational differences received considerable play in the early part of the century when the sociologist Karl Mannheim called attention to generational conflicts, particularly between adolescents and young adults and their parents. Indeed, much of the literature on generational differences written by sociologists deals with issues of generational conflicts and transmission of values. Similar early concerns in psychology appear in the work of Charlotte Buehler centering on conflicts between adolescents and their parents. Among developmental psychologists, hints of concern about possible effects of generational differences can be found in the work of Raymond Kuhlén, who was the first in psychology to call attention to the fact that individuals age within the context of changing societies, implying the possibility that the timing of behavioral change might be important.

In the more recent literature, generational differences began to resurface in the mid-1960s almost simultaneously in both the sociological and developmental psychology literature. Ryder suggested that the notion of cohort progression was an essential concept for the sociological study of change. This theme was further developed in its implication for social gerontology in a seminal volume by Riley, Johnson, and Foner. The author simultaneously emphasized that aging data obtained from cross-sectional and longitudinal data sets could not correspond with each other. Cross-sectional age differences are confounded with cohort (generational) differences, and longitudinal age changes are confounded with time-of-meas-

surement (period) differences. He specified a general developmental model that examined the formal nature of these relationships, placed them in the framework of quasi-experimental designs in psychology and education, and proposed strategies for collecting and analyzing data that might help obtain better estimates of the age factor.

Attempts to unconfound the age-period-cohort model have been controversial. However, given appropriate limiting assumptions, cohort studies have played an important role in behavioral research not only in controlling for methodological artifacts that might result in the over- or underestimation of aging effects, but also in examining the contextual variables that affect levels of behavior and expression of personality traits over time. There is still a lack of good understanding of the relationship between macrosocietal change and its effects upon age differences and age changes in behavior. The study of generational differences in behavior has provided an initial attempt to identify those variables most prone to shifts across generations. Geropsychologists who began prospective studies of aging from the 1960s on have therefore usually included multiple cohort designs of one kind or other to deal with the issue of possible generational differences.

II. GENERATION AND COHORT

We next distinguish between the terms *generation* and *cohort* by noting that the former term often denotes successive groups in time where the second group could be (but need not necessarily be) the biological offspring of the first group. By contrast, the term *cohort* defines an arbitrary definition of a point in time or range of time during which the members of the group enter the environment (by birth or other temporal entry). Hence the temporal distance between two generations will generally represent a time frame from 20–30 years, whereas cohort differences may and often do cover much shorter periods of time. [See COHORT STUDIES.]

Generational and cohort differences have usually been studied in the context of groups of people (birth cohorts) entering the environment at the same point (or range) of calendar time. It should be stressed nevertheless that the temporal boundaries for generations can also be characterized by noncalendar definitions.

For example, the initial group of workers hired for a new factory or the first faculty of a new educational institution would represent a generation (regardless of the individuals' calendar age), as would the initial membership of a newly formed club, or the first-time purchasers of homes in a new residential subdivision.

III. METHODOLOGICAL ISSUES

A. Research Designs for the Study of Generational Differences

Conventional cross-sectional studies confound age and generational differences, and findings from single-cohort longitudinal studies are often applicable only to the members of the particular generations on which they have been collected. Several alternative sequential strategies have been introduced to deal with this problem, including the behavioral assessment of more than one cohort over a given age range.

The term *sequential* implies that the sampling strategy used to study generational differences must include the acquisition of a sequence of samples taken across several measurement occasions. Perhaps the most widely used sequential strategy is the *cross-sequential* design, in which two or more cohorts are followed during an identical time period. This approach permits the comparison of longitudinal and cross-sectional data (provided that the calendar time ranges are similar for age and cohort). The advantage of this approach is that only two points in time are needed; hence the early appearance in the literature of studies using this design. For purposes of studying generational differences, however, this approach represents a "model misspecification" because it does not allow comparing each cohort over the same age range.

Geropsychologists and other developmental scientists often find the *cohort-sequential* design of greatest interest because it explicitly differentiates intraindividual age changes that occur within a generation from interindividual differences between generations. This design also permits a check of the consistency of age functions over successive generations, thereby offering greater external validity than would be provided by a single-cohort longitudinal design. A cohort-sequential study consists of two or more generations (however defined) being followed over two or more similar age levels. The minimum design for such a

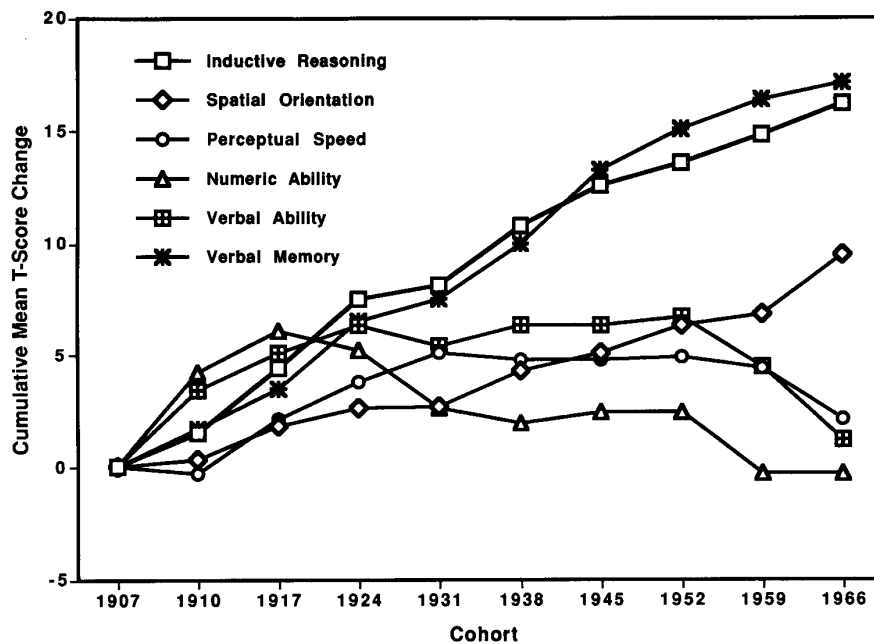


Figure 1 Cumulative generational differences for six mental abilities for birth cohorts in 7-year intervals from 1907 to 1966. (From Schaie, K. W., 1994. *The course of adult intellectual development. American Psychologist*, 49, 304-313. Reproduced by permission of the American Psychological Association.)

study involves three measurement points, allowing each of two cohorts to be followed over the same age range.

In a typical longitudinal study, *repeated measures* are taken of the same subjects at successive times. But it is also possible to use the same research design but with *independent samples* at each age level being measured. In this alternative one would draw a new (independent) sample from the same cohort initially tested. The independent sampling approach works well when a large sample is drawn from a large population, and when one is primarily interested in the estimation of population parameters. This approach controls for the effects of nonrandom dropout, regression to the mean because of fallible measurement instruments, and effects of practice or inadvertent changes in experimental protocols. If small samples are used it is, of course, necessary to make sure that successive independent samples are matched on factors such as gender, income, and education to avoid

possible differences due to selection biases. [See RESEARCH DESIGN AND METHODS.]

B. Designs for Specific Issues in the Study of Generational Differences

If the primary interest of an investigator resides in the estimation of magnitudes of generational differences, then the independent samples approach described above will suffice. That is, one needs to obtain data from a minimum of two cohorts at the same age in order to estimate the magnitude of the cohort difference. However, it is probably quite problematic to estimate generational differences at only one age level, because of the possibility of age-by-cohort interactions. Hence, one would recommend for this purpose a cross-sectional sequence of sufficient temporal length that each pair of cohorts can be compared at multiple age levels, even though all cohort pairs cannot be compared at every age level of interest. When

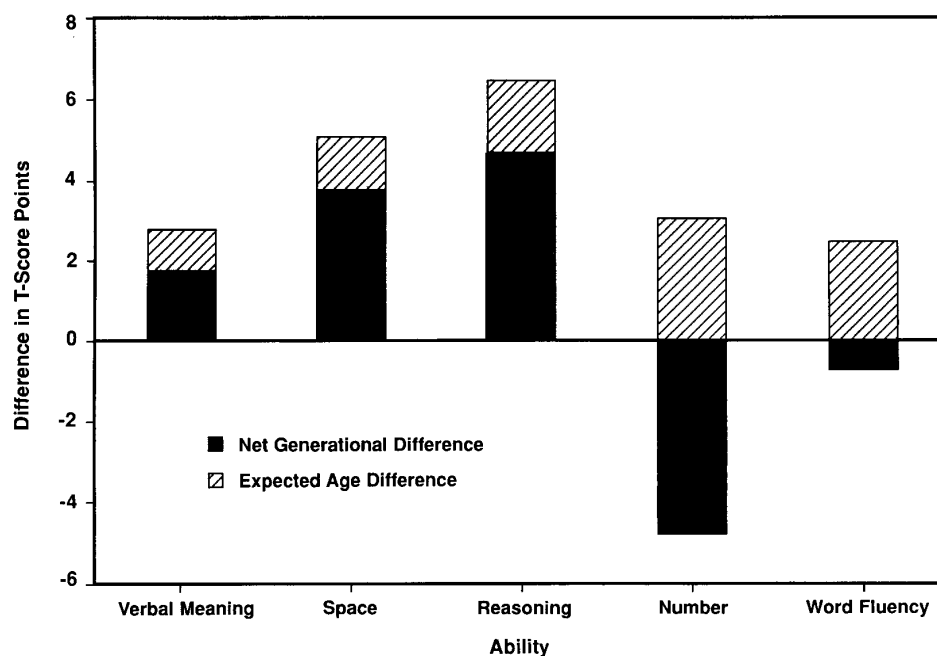


Figure 2 Generational differences in primary mental abilities between parents and their adult offspring. (From Schaie, K. W., Plomin, R., Willis, S. L., Gruber-Baldini, A., & Dutta, R., 1992. Natural cohorts: Family similarity in adult cognition. In T. Sonderegger (Ed.), *Psychology and aging: Nebraska Symposium on Motivation, 1991*. Lincoln, NE: University of Nebraska Press.)

this is done, one can then take the performance of the earliest born cohort as a base and cumulate successive cohort differences, in the same manner as life span psychologists estimate age gradients. This approach permits contrasting generational shifts in performance levels over time for distinct behavioral dimensions.

It should be noted that the above approach will not be applicable to the estimation of generational differences in rates of change. For the latter purpose it is necessary to follow the same individuals over time in the form of a longitudinal sequence that allows contrasting successive cohorts over the same age range. This approach is essential if one wishes to address the question whether there have been any changes in the *rate* of aging for successive generations.

If one wishes to define generational differences as those pertaining to differences in the behavior of successive generations of biologically related individuals, then it is necessary to contrast parents with their adult

offspring. Ideally, data would be required for such parents and offspring at the same ages. Barring the availability of such ideal data, designs of studies involving differences within family units must pay attention to the age at which subjects are assessed, as well as to gender differences, when cross-gender parent-offspring pairs are studied. Adjustments for the confounds of age and gender must often be used in order to get realistic estimates of generational differences within biologically related family units.

IV. SUBSTANTIVE FINDINGS

The remainder of this chapter will outline current knowledge of generational differences in intellectual competence, some selected demographic characteristics, and perceptions of family environments that may

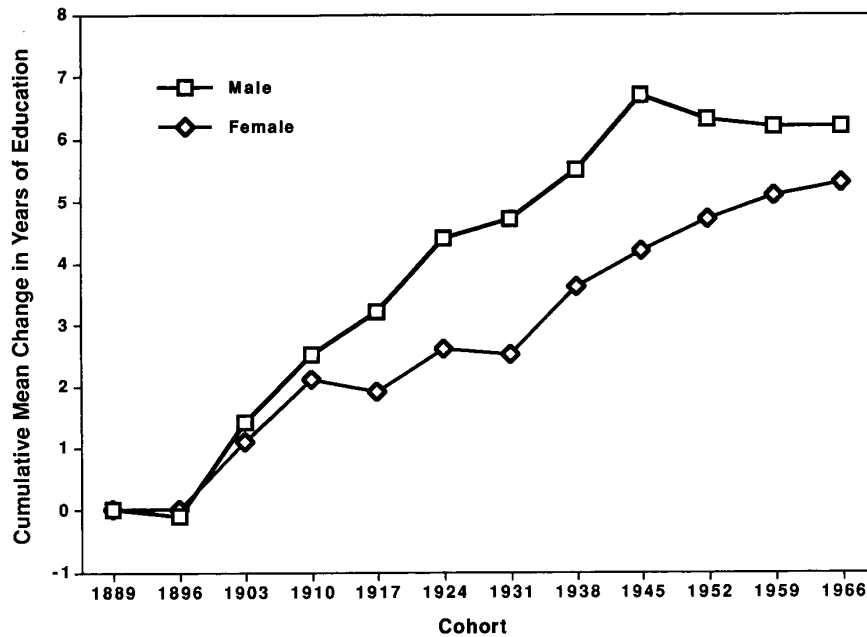


Figure 3 Generational differences in years of education by gender. (From Schaie, K. W., 1995. *Intellectual development in adulthood: The Seattle Longitudinal Study* (p. 157). New York: Cambridge University Press.)

have implications for our understanding of behavioral aging.

A. Generational Differences in Cognitive Abilities

Generational differences were first studied by means of cohort-sequential designs as part of the analyses conducted for the third cycle of the SLS. This study began in 1956 as a cross-sectional inquiry of the primary mental abilities over the age range from the twenties to the seventies. Longitudinal follow-ups have been conducted at five successive time points (7 years apart) in 1963, 1970, 1977, 1984, and 1991. All study participants were community-dwelling members of a health maintenance organization and represent the upper 75% of the socioeconomic spectrum. Figure 1 shows cumulated generational differences for birth cohorts from 1907 to 1966 in 7-year intervals for six primary mental abilities: Verbal Ability (recognition of the meaning of words); Inductive

Reasoning (the ability to abstract rules and principles from reoccurring single instances); Spatial Orientation (mental rotation of objects in two-dimensional space); Numeric Ability (skill in simple mathematical operations such as addition, subtraction, and multiplication); Perceptual Speed (rapid identification or matching of simple objects, or comparison of numbers); and Verbal Memory (immediate and delayed word recall). Each ability was measured by three or four different tests, and Figure 1 shows generational differences on the factor scores estimated for the latent ability constructs.

Substantial positive and linear generational differences were observed for Inductive Reasoning and Verbal Memory. The 60-year gain amounted to approximately 1.5 *SD*. This gain is likely associated with the substantial increase in educational exposure occurring over this time period. The positive gain in Inductive Reasoning across successive generations may also be related to changes in educational practice from rote learning to the encouragement of discovery methods. Of course, the virtual conquest of childhood diseases

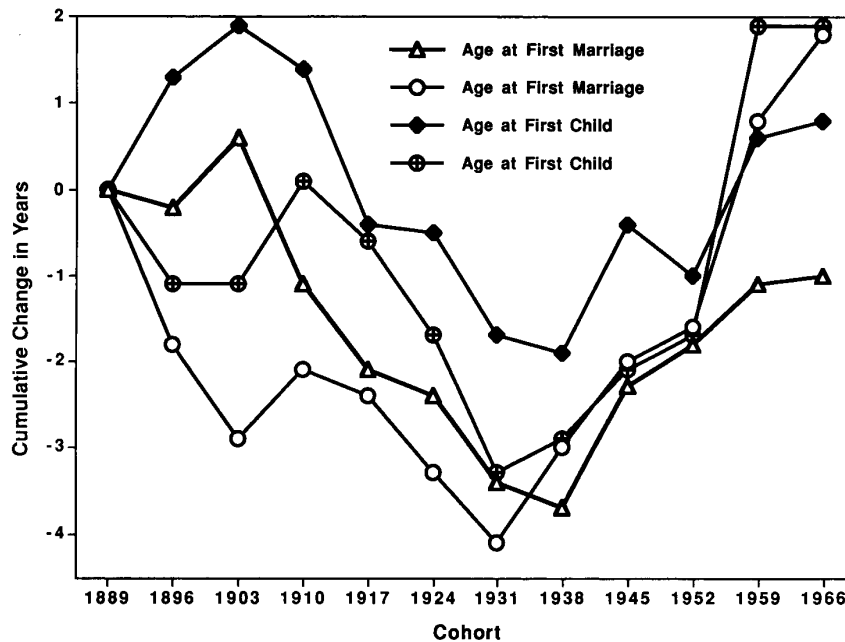


Figure 4 Generational differences in age at first marriage and age at birth of first child, by gender. (From Schaie, K. W., 1995. *Intellectual development in adulthood: The Seattle Longitudinal Study* (p. 157). New York: Cambridge University Press.)

and the adoption of more favorable lifestyles in successive birth cohorts may also be implicated. A similar positive, although less steep, difference pattern occurred for Spatial Orientation. By contrast, Numeric Ability seems to have peaked in the 1920s and has declined somewhat since then. It seems that the same changes in educational practices that have been favorable for Inductive Reasoning have led to some loss in number manipulation skills as well. The decline in Numeric Ability across recent cohorts explains the fact that current cross-sectional studies suggest relatively little decline in Numeric Ability even though substantial decline has been found in longitudinal data. Both Perceptual Speed and Verbal Ability improved somewhat during the earlier part of this century, but have shown modest decline in the baby boom generation. Generational differences of a magnitude similar to the Inductive Reasoning factor have also been observed for a measure of practical intelligence involving common everyday tasks.

Comparisons from family studies of biologically related individuals involving parents and their adult

offspring have yielded similar findings on generational differences in cognitive abilities. Figure 2 shows findings on tests of five primary mental abilities for the difference between parents and their adult offspring. The bars show the absolute mean difference in this large set of families. The hatched part of the bar represents an adjustment for the expected age difference between the older parents and their young-adult or middle-aged children. The solid part is the net difference. If there were no differences between generations the solid bar would be zero. As can be seen, there are significant differences favoring the younger (offspring) generation on Inductive Reasoning, Spatial Orientation, and Verbal Ability. On Number ability, it is again the older generation that is at an advantage, although there is little difference on Word Fluency.

B. Generational Differences in Selective Demographic Characteristics

Gerontologists have long been aware that some of the age difference findings reported in the literature are

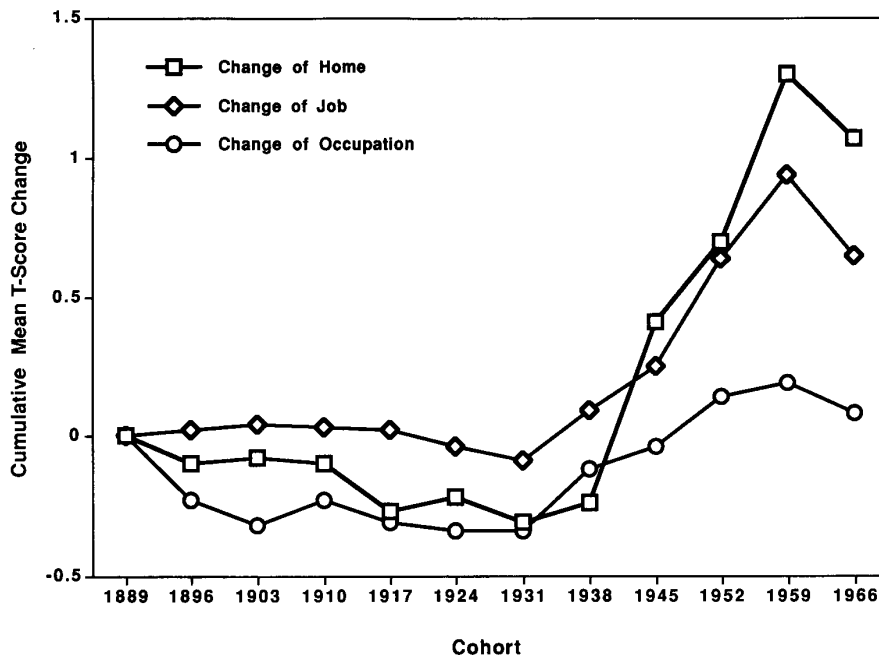


Figure 5 Generational differences in frequency of change of job, occupation and place of residence. (From: Schaie, K. W., 1995. *Intellectual development in adulthood: The Seattle Longitudinal Study* (p. 162). New York: Cambridge University Press.)

clouded by the noncomparability of a variety of demographic characteristics between the young and the old. Often these differences have been interpreted as inevitable products of the aging process, and investigators have failed to correct for them. In studies with my colleagues, we have been able to show that a number of these demographic differences actually have little to do with the aging process but rather must be attributed to generational differences. As examples of substantial generational differences in demographic characteristics I would mention educational level, age at first marriage, and age at birth of first child.

Over the range of birth cohorts represented in the SLS (1889–1966) there has been a steady increase in years of education, amounting to a difference in education of about 5 years between the earliest and latest cohorts studied. As shown in Figure 3, the increase has been approximately 1 year greater for men than for women. Age at first marriage declined by approximately 4 years from the earliest cohort to

those born in the 1930s (the lowest level was reached by men for those born in 1931 and by women for those born in 1938). From then on there has been a steady rise, which is most pronounced for women. As for the age of individuals when their first child was born, there has been a steady increment that leveled off for males for those born in 1952 but has continued to rise for women. On average, parental age at birth of the first child occurs approximately 5 years later for the most recently born than for the earliest cohort. The cumulated generational difference gradients for latter two variables are shown separately by gender in Figure 4.

Other demographic characteristics that may be important in aging studies include measures of mobility (changes in the location of one's home, changes of job, and changes in occupation). Figure 5 shows average changes in the 5 years preceding each reporting date. Note that there is some very modest drop in residential and job mobility from the oldest cohort to that born in 1938; over the same cohort range there are virtually

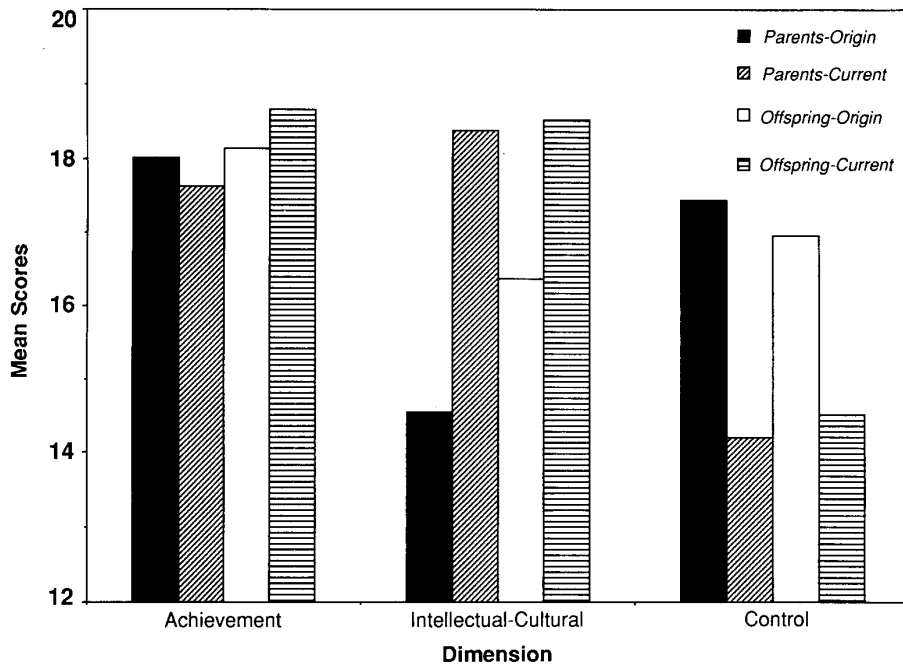


Figure 6 Interaction of perceived family environment by generation and life stage. (From Schaie, K. W., & Willis, S. L., 1995. Perceived family environments across generations. In V. L. Bengtson, K. W. Schaie, & L. Burton (Eds.). *Adult intergenerational relations: Effects of societal change*. New York: Springer.)

no cohort differences in occupational mobility. But, mobility characteristics increase sharply for the baby boomer cohorts for all three measures, residential and job mobility changes showing the most pronounced generational differences.

C. Generational Differences in Perceptions of Family Environments

A final set of findings of generational differences in geropsychology comes from the assessment of perceptions of family environments by older parents and their adult children within their current families and their families of origins (the families in which they were raised). Although one must always be careful in accepting the veracity of subjective data, particularly when it is retrospective in nature, there is substantial evidence of the utility of perceptions of behavioral dimensions.

In addition to comparing such perceptions across

biologically related generations for large populations, it is also instructive to look at shifts in these relationships for successive birth cohorts, similar to those considered above for cognitive and demographic variables. For example, the question may be asked whether there are differences among parent-offspring pairs when offspring are classified into those born prior to World War II, those born during the war years and immediately thereafter, and those who belong to the baby boomer cohorts.

The relevant data inform us that there is a clear differentiation for parents and offspring in the perceived level of all family dimensions between their family of origin and their current families. Obviously the retrospective distance in time is greater for the parents than for the adult offspring. Nevertheless, shifts in the quality of family environments are reported consistently over persons' own life course. The current families are seen as more cohesive and expressive but also characterized by more conflict than was

reported for the families of origin. There seems to be a shift towards greater openness and engagement in family interactions. More intensive family interactions are also reflected by intellectual-cultural and active-recreational orientation from the family of origin to the current family. Along with these shifts there is the overall perception of lower levels of perceived control, family organization, and achievement orientation (see Fig. 6). Perhaps these judgments are another way of describing the increasing complexity of modern American families. Combined with continuing reports of ever lower reported levels of social responsibility, this may well mean that the perceived role of the American family is changing from that of a primary socialization agent (operating on behalf of the larger society) to a more effective support system for the needs of the individual family member.

When the two-generation parent-offspring sample is broken down into four distinct cohort groups, it appears that the shifts in perceived family level occurred primarily for perceptions of the family of origin. Perceptions of the current family is much more similar across birth cohorts. This is reasonable because judgments of the current family reflect the current societal climate common to most, whereas perceptions of the family of origin reflect different secular periods for which successive cohorts described their early family experiences.

Substantial correlations between parents' description of their current family environment and their offspring's description of their family of origin provide supporting evidence for the continuity of family values and behaviors. Even though there is a substan-

tial time gap in the period rated, these two ratings do refer to the same parental family unit. This similarity of perceptions across generations was particularly strong for three dimensions most closely reflective of value orientations (achievement, intellectual-cultural, and active-recreational) and for family organization.

It is interesting to note that the magnitude of perceived similarity across generations will differ by gender pairing and by specific family environment dimensions. It is not surprising that the strongest similarity of family environment perceptions occurs within mother-daughter pairings, even though frequency of contact between adult mothers and daughters is only slightly greater than that for other relationship combinations. In fact, the intensity (frequency) of contact between parents and offspring seems to have virtually no impact upon the similarity of reported family environments.

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