

CHAPTER 5

Perceived Family Environments Across Generations

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The Seattle Longitudinal Study (SLS) has followed panels of multiple cohorts of adults over the past three decades to assess age changes in intellectual abilities over the adult life course. Study participants have been followed over as long as 35 years (Schaie, 1958, 1983, 1988, 1989, 1990a; Schaie & Hertzog, 1986; Schaie & Labouvie-Vief, 1974; Schaie & Strother, 1968). This study has recently been expanded by assessing the adult offspring and siblings of many of our original study participants, thus allowing us to consider issues germane to the fields of developmental behavior genetics and family studies. Data with respect to cognitive similarity among adult family members have been reported elsewhere (cf. Schaie, Plomin, Willis, Gruber-Baldini, & Dutta, 1992; Schaie et al., 1993). The purpose of this chapter is to report data on family similarity in the perception of individuals' family environments, as well as to contrast differences in perceptions within parent-offspring pairs (across generations) to differences within sibling pairs (within generations).

Parent-offspring similarity has traditionally been studied in young adult parents and their children, while sibling studies have primarily involved children and

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adolescents. In this chapter we report some of the first data on the perception of family similarity of perceptions of family environments between parents and their adult offspring and of adult sibling similarity in such perceptions in adulthood. Perceptions of family environments are considered both with respect to the family of origin (i.e., the family setting experienced by our study participants when they lived with their own parents) and with respect to the current family (i.e., the family reference unit at the time these data were collected). The relation of perceived family environments to reported current intensity of contact between parent-offspring and sibling pairs will also be examined.

ROLE OF DEVELOPMENTAL BEHAVIOR GENETICS

The relatively new interdisciplinary field of developmental behavioral genetics merges developmental and behavioral genetic theories and methodologies and offers exciting possibilities for understanding the origins of change and continuity in development (Plomin, 1986). The new focus of developmental behavioral genetics on change, not just continuity, often surprises those developmentalists who tend to associate the adjectives genetic and stable. However, longitudinally stable characteristics do not necessarily have a hereditary base, nor are genetically influenced characteristics necessarily stable.

A second issue receiving attention by developmental behavioral geneticists is that of nonshared environmental influence (Rowe & Plomin, 1981). In general, behavioral genetic research provides the best available evidence for the importance of environmental influences. Moreover, behavioral genetic research converges on the remarkable conclusion that environmental influences operate in such a way as to make individuals in the same family as different from one another as are pairs of individuals selected at random from the population. In other words, psychologically relevant environmental influences are likely to make individuals in a family different from, not similar to, one another (see Plomin & Daniels, 1987).

DEVELOPMENTAL BEHAVIOR GENETICS AND AGING

From a behavioral genetic perspective, very little is known about the origins of individual differences in cognitive abilities, personality, and adjustment during the last half of the life span (Plomin & McClearn, 1990). Most behavioral genetic research in adulthood in the past has involved family members in their late teens, typically toward the end of high school or at the time of military induction (Plomin, 1986). In the handful of studies that include older adults, the average age of the sample is generally in the 20s or 30s; hence cross-sectional analy-

ses of family resemblance as a function of age are limited. Past genetic studies covering middle and old age were twin studies (cf. Jarvik, Blum, & Varma, 1971; Kallman & Sander, 1949; Plomin, Pedersen, Nesselroade, & Bergeman, 1988). Results from these studies, because of the unusual life circumstances of twins, may be difficult to generalize to the more typical case of family similarities among nontwins.

The research reported here capitalizes on the longitudinal-sequential design of the SLS offering the opportunity to compare young adult and middle aged offspring with their middle-aged and old parents, and to compare sibling pairs from young adulthood to old age. Our family design cannot unambiguously disentangle the contributions of heredity and shared environment because parents and offspring, as well as siblings, at least over some extended period of their lives shared the same family environment as well as heredity. The family design used here, however, has some important advantages over twin and adoption designs. Twins share environmental experiences in common to a much greater extent than do first-degree relatives; furthermore, twin studies estimate higher order genetic interactions (i.e., epistasis) unique to identical twins. Thus, the results of twin studies may not generalize to the usual case of first-degree relatives either in terms of environmental or genetic factors. Early-adopted individuals are difficult to find later in life, and they may differ from nonadopted individuals in terms of the family environments that they experience (Plomin, 1983).

Family studies are valuable because first-degree relatives represent the population to which we wish to generalize the results of behavioral genetic investigations. The family design asks the extent to which individual differences are due to familial factors, whether genetic or environmental, and it provides upper-limit estimates of genetic and shared family environmental influences. One way in which individuals experience shared family environments is to inquire as to the shared perceptions of this environment; this is our current task.

SEATTLE LONGITUDINAL STUDY

The data base to be examined here stems from our inquiry into adult cognitive functioning that began some 35 years ago by randomly sampling 500 subjects equally distributed by sex and age across the range from 20 to 70 years from the approximately 18,000 members of a health maintenance organization (HMO) in the Pacific Northwest (Schaie, 1983, 1989; Schaie & Hertzog, 1986). The survivors of the original sample were retested and additional panels were added in 7-year intervals; a total of more than 5,000 different individuals have been studied at least once. The sampling frame of this project, now known as the SLS, represents a broad distribution of educational and occupational levels, cov-

Study Waves					
1956	1963	1970	1977	1984	1991
S ₁ T ₁ (N = 500)	S ₁ T ₂ (N = 303)	S ₁ T ₃ (N = 162)	S ₁ T ₄ (N = 130)	S ₁ T ₅ (N = 92)	S ₁ T ₆ (N = 71)
	S ₂ T ₂ (N = 997)	S ₂ T ₃ (N = 420)	S ₂ T ₄ (N = 337)	S ₂ T ₅ (N = 204)	S ₂ T ₆ (N = 161)
		S ₃ T ₃ (N = 705)	S ₃ T ₄ (N = 340)	S ₃ T ₅ (N = 225)	S ₃ T ₆ (N = 175)
			S ₄ T ₄ (N = 612)	S ₄ T ₅ (N = 294)	S ₄ T ₆ (N = 201)
				S ₅ T ₅ (N = 628)	S ₅ T ₆ (N = 428)
					S ₆ T ₆ (N = 690)

S = Sample; T = Time of Measurement

Figure 5.1. Design of the Seattle Longitudinal Study.

ering the upper 75% of the socioeconomic spectrum. The population frame from which we have been sampling has grown to a membership of more than 400,000 individuals, but the general characteristics of the HMO remain comparable with its structure at the inception of the study. The study design of the SLS is given in Figure 5.1.

Throughout the course of the SLS our primary focus has been the investigation of psychometric abilities within the Thurstonian (1938) framework. However, we have also collected data on rigidity-flexibility, lifestyles, some personality traits, as well as the health histories of our participants. To examine perceptions of shared environments, we began to add appropriate scales for this purpose beginning with our 1989-90 data collections. Details of the measures included in the study reported here will be given in the methods section.

We have previously reported our findings on cognitive similarity (Schaie, Plomin, Willis, Gruber-Baldini, & Dutta, 1992; Schaie, Plomin, Willis, Gruber-Baldini, Dutta, & Bayen, 1993). Briefly, we found that significant family similarities were observed for parent-offspring and sibling pairs for all ability measures, except perceptual speed, and for cognitive-style measures of rigidity-flexibility. The magnitude of correlations for the ability measures were comparable for

those found between young adults and their children (DeFries et al., 1976). Our data also strongly supported stability of parent-offspring correlations over as long as 21 years. Evidence supporting the absence of shared environmental effects on family similarity were provided by analyses of the intensity of current parent-offspring contact.

We had suspected that cohort effects in parent-offspring correlations would result in higher correlations for earlier cohorts, because of a decline in shared environmental influence attributed to an increase in extrafamilial influences in more recent cohorts. This proposition could be supported only for the attitudinal trait of social responsibility (systematic cohort differences on this variable have previously been reported, e.g., Schaie & Parham, 1974). For the cognitive abilities, once again counterintuitively, there seems to be stability or even an increase in family similarity for more recent cohorts. Finally, ability level differences within families equaled or approximated differences found for similar cohort ranges within a general population sample (cf. Schaie, 1990b; Willis, 1989). When broken down by cohort groupings, such differences became generally smaller for the more recently born parent-offspring pairs.

In this chapter we focus exclusively on our subjects' perceptions of their family environment, without attending to the influence of such perceptions on intelligence. Our efforts to measure these perceptions were motivated by the fact that it is extremely difficult to measure current environments objectively, and it is virtually impossible to obtain such information directly over the quality of environments that pertained at earlier life stages of our study participants. We therefore decided that it was necessary to infer environmental quality by asking our subjects to rate both their current environments and their retrospection of the family environment they experienced within their biological family of origin. We are concerned first to examine the usefulness of family environment perceptions to measure environmental heterogeneity. That is, we ask the structural question whether the same dimensions can be used by subjects across and within families to describe their current families and their families of origin. We next examine the substantive issues whether we can demonstrate the existence of generational patterns or secular trends in the perception of family characteristics. We do this by testing whether the strength of family similarity in perception is greater with respect to *shared* than to *unshared* environments. We do this for parent-offspring pairs who have shared the same environment but did so at different life stages, and for sibling-pairs who have shared the same environment at the same life stage. To the extent that we can demonstrate differential strength of perceptions within similar environments as opposed to different environments we will also provide indirect evidence supporting the construct validity of mea-

asures of the perceived family environment as indicators of actual family environments.

METHODS

Subjects and Procedure

The participants in the family similarity study consist of the adult offspring and siblings (22 years of age or older in 1990) of members of the SLS panels and their target relatives. Those members who participated in the fifth cycle of the SLS had a total of 3,507 adult children. Of these, 1,416 adult children ($M = 701$; $F = 715$) resided in the Seattle metropolitan area. They also had a total of 1,999 siblings including 779 brothers and 1,020 sisters.

The recruitment of the adult offspring and siblings began with a letter containing an update report on the SLS sent to all study participants tested in 1983-85. This letter also announced the family resemblance study and requested that panel members provide names and addresses of siblings and offspring. A recruitment letter was then sent to all siblings and offspring thus identified.

Those who agreed to participate in the study were tested in small groups or individually. Approximately 80% of the subjects tested resided in the Seattle metropolitan area. Other subjects were tested preferably when they visited their Seattle relatives, but approximately 150 subjects were tested in other locations throughout the United States. A total of 1,176 relatives of our longitudinal panel members were tested. Of these 776 were adult offspring (465 daughters and 311 sons), and 400 were adult siblings (248 sisters and 152 brothers) of SLS participants. All subjects were tested on the basic cognitive battery. In addition they completed a family contact scale and family and work environment questionnaires as well as the standard SLS personal data form.

Data relevant to the present report on the target subjects (i.e., individuals who had previously been members of the SLS panel) were obtained during the 1991 longitudinal follow-up (data collection actually continued (from mid-1990 to mid-1992). Subsequent to matching target subjects and their relatives, we were able to identify 452 parent-offspring and 207 sibling pairs on whom complete data is available; or a total sample of 1,318 individuals. These consist of 85 father-son, 110 father-daughter, 96 mother-son, 161 mother-daughter, 28 brother-brother, 106 brother-sister, and 73 sister-sister pairings. The reduction in sample size occurred because of substantial attrition in the number of study members whose relatives we had been able to assess earlier; among the older

TABLE 5.1. Age and Sex Distribution of Study Participants

Age Range	Parents			Offspring			Siblings					
	(Targets)			(Relatives)			(Targets)			(Relatives)		
	(1991)			(1990)			(1991)			(1990)		
	M	F	T	M	F	T	M	F	T	M	F	T
22 - 28	-	-	-	15	20	36	-	-	-	1	-	1
29 - 35	-	-	-	43	77	126	1	1	2	3	6	9
36 - 42	-	-	-	49	82	130	7	5	12	8	3	30
43 - 49	-	7	7	50	69	119	7	15	22	8	17	25
50 - 56	10	18	28	17	26	43	13	15	28	6	15	21
57 - 63	17	65	82	4	6	10	7	24	31	10	24	34
64 - 70	44	48	92	2	3	5	19	20	39	26	18	54
71 - 77	65	71	136	-	-	-	16	25	41	19	20	39
79 - 84	47	39	86	-	-	-	13	17	30	3	6	9
85 - 91	9	8	17	-	-	-	1	1	2	2	3	4
92 +	3	1	4	-	-	-	-	-	-	-	-	-
Total	181	271	452	195	267	452	84	123	207	77	130	207

study members attrition was due primarily to death or sensory and motor disabilities that precluded further assessment or questionnaire response.

Table 5.1 provides a breakdown of parents, offspring, and siblings by age and sex, using the 7-year cohorts conventionally employed in the SLS (cf. Schaie, 1983, 1988).

Average age of the parents was 70.26 years (SD = 9.24) and 39.94 years (SD = 8.64) for the offspring. The parents averaged 14.46 years of education (SD = 2.86) as compared to 15.56 years of education (SD = 2.41) for their chil-

dren. Total family income averaged \$24,681 for the parents and \$26,841 for the offspring, respectively. Average number of children was 3.53 for the parental and 1.45 for the offspring generation.

Average ages for the siblings were 63.23 years (SD = 12.78) for the longitudinal study members and 61.06 years (SD = 13.16) for their relatives. The target siblings averaged 14.90 years of education (SD = 3.25) compared with 14.62 years of education (SD = 2.78) for their brothers or sisters. Average incomes were \$26,416 for the longitudinal study members and \$25,682 for their siblings. Average number of children were 3.09 for the longitudinal subjects and 2.69 for their siblings.

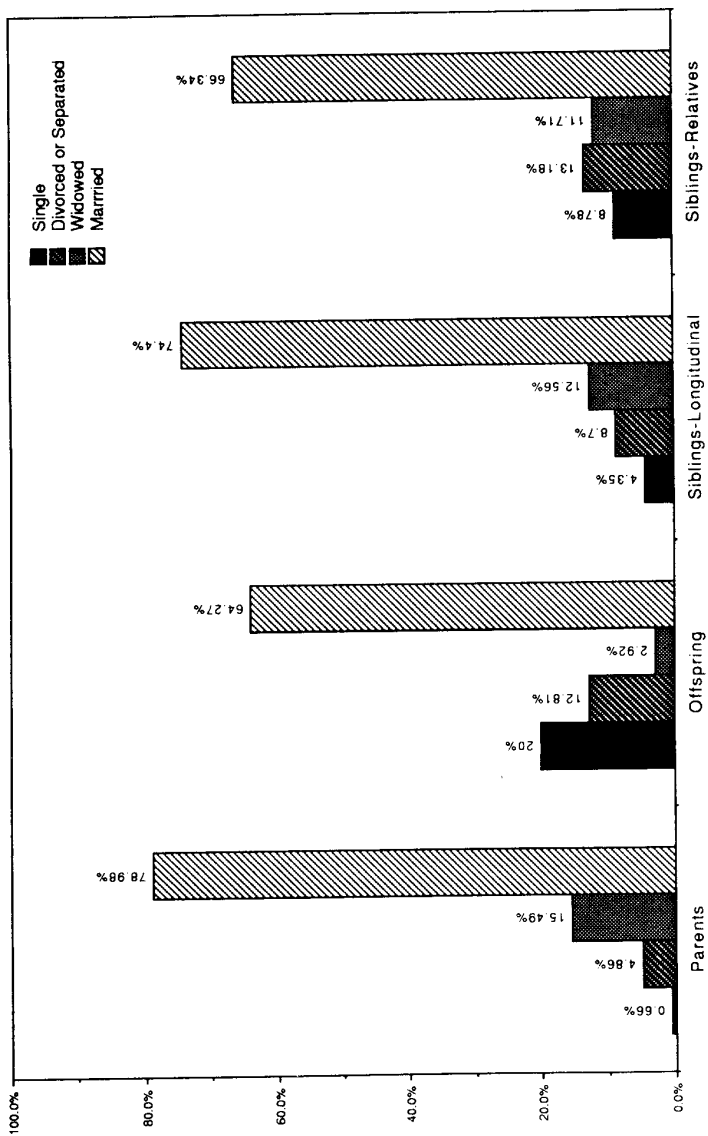
Marital status distribution and religious preferences for parents, offspring, and siblings are shown in Figures 5.2 and 5.3.

Measures

Family Environment

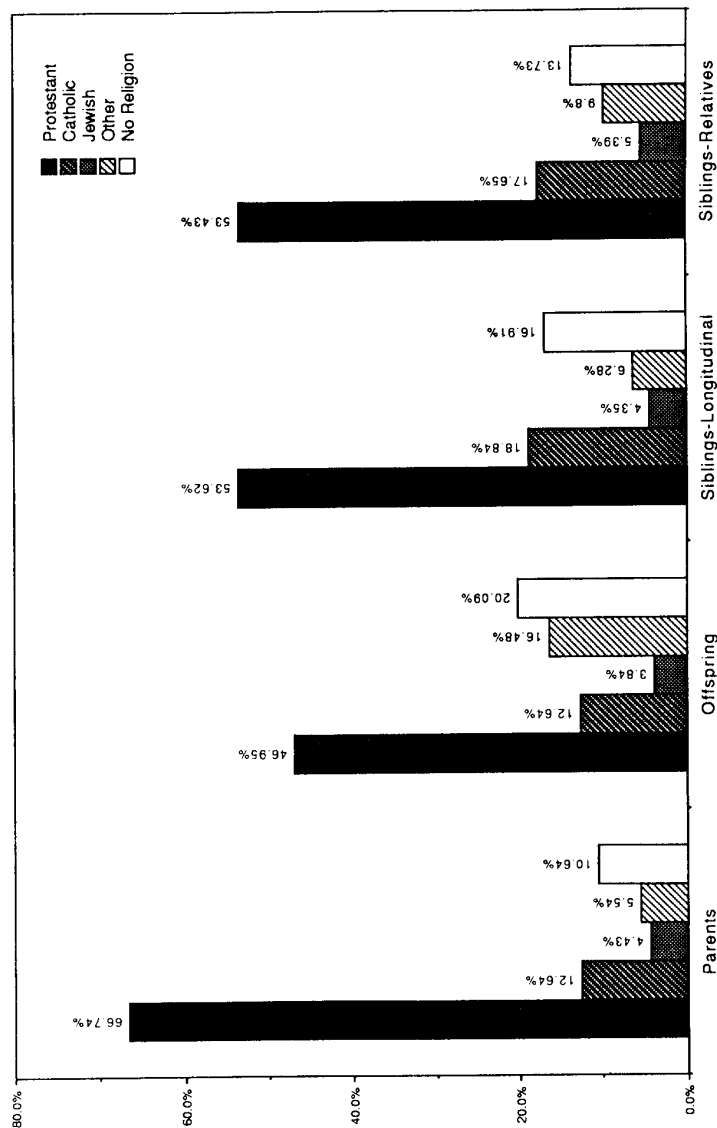
Moos and Moos (1986) constructed a 90-item true-and-false family environment scale measuring 10 different dimensions (each measured by nine items), three of which they described as relationship, five as personal growth, and the remaining two as system maintenance and change dimensions. The purpose of these scales was to provide an assessment instrument to examine environmental context of adaptation (Moos, 1985, 1987). We adapted eight of these scales for our purposes by selecting five items per scale and presenting each statement in Likert scale form (1 = strongly disagree; 2 = somewhat disagree; 3 = in between; 4 = somewhat agree; 5 = strongly agree). The eight dimensions included for our purpose and examples of statements scored in the positive direction on each dimension follow:

1. Cohesion (Relationship)
Example: "Family members really help and support one another."
2. Expressivity (Relationship)
Example: "We tell each other about our personal problems."
3. Conflict (Relationship)
Example: "Family members hardly ever lose their temper."
4. Achievement orientation (Personal growth)
Example: "We feel it is important to be the best at whatever we do."
5. Intellectual-cultural orientation (Personal growth)
Example: "We often talk about political and social problems."
6. Active-recreational orientation (Personal growth)
Example: "Friends often come over for dinner or to visit."



Sample

Figure 5.2. Marital status distribution of parents, offspring, and siblings.



Sample

Figure 5.3. Religious preference distribution of parents, offspring, and siblings.

7. Organization (System maintenance)
Example: "We are generally very neat and orderly."
8. Control (System maintenance)
Example: "There are set ways of doing things at home."

Two forms of the Family Environment Scale (FES) were constructed: The first asked that the respondents rate their family of origin (i.e., past tense statement with respect to the parental family); the second form requested the same information (in present tense) with respect to the current family. On each form respondents were also asked to indicate the membership of both their families of origin and their current families. They were then instructed to do the ratings with respect to the family grouping identified by them. In other words, for the parents this implied rating the "empty nest" family. In recognition of the fact that significant numbers of our young adult and older study participants lived by themselves, an alternative form was constructed that allowed defining the current family as those individuals (whether or not related by blood or marriage) that the respondent considered as his or her primary reference group and with whom the respondent interacted at least on a weekly basis.

A confirmatory factor analysis (using LISREL 7) was conducted on a random half of the sample of relatives for both forms to determine whether the retained items clustered on the factors described by Moos. The obtained fit (family of origin: $\chi^2(701) = 1,235.56$; $p < .001$; GFI = .842; RMS = .084. Current family: $\chi^2(701) = 1,254.48$; $p < .001$; GFI = .839; RMS = .089) was then confirmed on the second random half (family of origin: $\chi^2(701) = 1,266.05$; $p < .001$; GFI = .842; RMS = .090. Current family: $\chi^2(701) = 1,357.07$; $p < .001$; GFI = .829; RMS = .089). Factor intercorrelations for both scales are shown in Table 5.2.

Although we obtained a good fit for the primary dimensions, we were unable to reproduce the higher order structure postulated by Moos. Our findings will therefore be reported only with respect to Moos' primary dimensions.

Family Contact

As a measure of the intensity of family contact we asked respondents to indicate on a 5-point Likert scale the nature of their relationship (1 = close, 2 = somewhat close, 3 = in between, 4 = not close, 5 = not close at all), the number of years respondents and their relative had lived in the same household, and four 6-point Likert scales that assessed frequency of their physically visiting, talking on the telephone, writing letters, or obtaining news of their relative via a third

TABLE 5.2. Intercorrelation of Family Environment Scales (Family of Origin Above Diagonal, Current Family Below Diagonal)

	Cohesion	Express.	Conflict	Achievement Orientation	Intell. Cultural	Active- Recreational	Organiz.	Control
Cohesion	.860							
Expressivity	.837	.860						
Conflict	.565	.323	.664					
Achievement- Orientation	.274	.239	.009	.372				
Intellectual- Cultural	.492	.562	.251	.339	.434			
Active-Recreational	.448	.453	.093	.065	.161	.524		
Organization	.346	.235	.346	.234	.149	.515	.272	
Control	-.013	-.121	-.155	.209	-.216	.210	.033	-.133
						.369	.256	-.208
						.430	.333	-.286
						.659	.056	.289
						.606	.138	-.130
						.186	.448	-.038
						.006	.448	.393

party (1 = daily, 2 = every week, 3 = every month, 4 = every year, 5 = hardly ever, 6 = never). Item scores were reversed and summed to obtain a single contact score (a high score implying closeness and frequent contact).

RESULTS

We will first consider the similarity of perceptions in terms of intrapair correlations among parents and adult offspring and then examine the predictability of current family environments from knowledge of individuals' perception of their environment of origin, as well as their parent's perceptions. Similar data will be examined for sibling pairs. Next we consider the effect of perceived family environment on the frequency of contact among parent-offspring and sibling pairs. In a second section we consider the magnitude of (within-pair) intergenerational differences in perceptions of parental and current family environments.

Similarity of Family Environment Perceptions of Parents and Their Adult Offspring (Correlational Data)

Three sets of relationships can be considered: the correlations between family environment perceptions of the parents and offspring with respect to their family of origin and their current families, and the correlation of the offspring perception of their family of origin with their parent's perception of the parent's current family. The first two sets of relationships involve comparisons of the same life stage across generations, but representing different families for each generation. The third set of relationships is concerned with the perceived similarity of the family environment within the same family across generations. In comparing correlational patterns (magnitude of correlations) across generations, within life stages, and across different gender pairings, we employ a generalized maximum likelihood test (within LISREL VII) to test for statistical significance of differences between correlation patterns.

Family of Origin

For the total sample significant, but modest, correlations between parents and offspring were found for the dimensions of cohesion, expressivity, conflict, intellectual-cultural, organization and control (see Table 5.3). The highest overall correlation amounted to .294 for conflict. When analyzed separately by gender pairing, we note a significantly different pattern for the correlations for the father-daughter and mother-daughter combinations ($\chi^2[8] = 24.71; p < .01$). The relationships for cohesion and active-recreational orientation remain significant only for mothers and daughters, that for expressivity only between fathers and daughters, for intellectual-cultural orientation between mothers and their children (regardless of gender), and for organizational between fa-

TABLE 5.3. Correlation Between Parents and Offspring in their Perceptions of Family Environment in their *Family of Origin*

	Total Sample	Fathers/ Sons	Fathers/ Daughters	Mothers/ Sons	Mothers/ Daughters
Cohesion	.204***	.201	-.011	.191	.310***
Expressivity	.142*	.139	.268**	.088	.088
Conflict	.294***	.208*	.292**	.306**	.307***
Achievement Orientation	.093	.088	-.011	-.002	.206**
Intellectual- Cultural	.231***	.109	.177	.351***	.276***
Active- Recreational	.084	.043	.056	.036	.151*
Organization	.213***	.405***	.291***	.142	.119
Control	.151***	.230*	.244**	-.052	.154*

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

thers and their children. The relationship for conflict holds for all gender pairings, whereas that for control holds for all except the mother-son pairings.

Current Family

Somewhat lower correlations are found when we compare our subjects' perceptions of their current families across the two generations. Overall, correlations

TABLE 5.4. Correlation Between Parents and Offspring in their Perceptions of Family Environment in their *Current Family*

	Total Sample	Fathers/ Sons	Fathers/ Daughters	Mothers/ Sons	Mothers/ Daughters
Cohesion	.108*	.015	.106	.145	.147
Expressivity	.044	-.194	.038	.031	.172*
Conflict	.087	.094	.226*	.051	.023
Achievement Orientation	.098	-.083	-.047	.274**	.114
Intellectual-Cultural	.266***	.283**	.297**	.200*	.284***
Active-Recreational	.156**	.144	.090	.228*	.154*
Organization	.184**	.123	.178	.191	.233**
Control	.105*	-.092	.232*	.083	.131

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

are significantly lower for the "current" correlations than the "origin" correlations for the fathers-sons ($X^2[8] = 17.71$; $p < .05$) and mothers-daughter ($X^2[8] = 12.46$; $p < .05$) combinations. However, here too significant overall correlations are observed for the dimensions of cohesion, intellectual-cultural, organization, and control (see Table 5.4). When gender pairings are considered,

additional significant correlations are found for mothers and daughters on expressivity and for fathers and daughters on conflict. The relationship for achievement orientation remains significant only for mother-son pairings, for active-recreational orientation for mothers and their children (regardless of gender), for mothers and daughters on organization and for fathers and daughters on control. However, the correlational patterns do not differ significantly across pairings.

Similarity of Perceived Family Environment Across Generations

Here we inquire as to the magnitude of the relationship between the parents' current environment and their offsprings' perception of their family of origin. This is presumably the same family at different life stages, when the offspring were part of the parental family, and that same family is now in the post-parental phase. Even though the actual family composition has, of course, changed we found that correlations were substantially higher for this comparison, and statistically significant for the total sample for all dimensions (see Table 5.5). Statistically significant correlations were found also for all gender pairings for the intellectual-cultural, active-recreational, and organization and control dimensions. Significant correlations were found for same gender (father-son and mother-daughter) pairings for cohesion, and for all but mother-son pairings for conflict. Correlational patterns did not differ significantly by gender pairing. However, these correlations are significantly higher than those found for the family of origin ratings across the two generations ratings for the total sample ($\chi^2[8] = 31.38$; $p < .001$) as well as the father-son ($\chi^2[8] = 17.71$; $p < .05$, father-daughter ($\chi^2[8] = 15.51$; $p < .05$), mother-son ($\chi^2[8] = 22.88$; $p < .001$), and mother-daughter ($\chi^2[8] = 15.80$; $p < .05$) gender pairings. They are also significantly higher than the cross-generational correlations for their current families for the total sample ($\chi^2[8] = 30.87$; $p < .001$) and for the father-son ($\chi^2[8] = 29.95$; $p < .001$) gender pairing.

Similarity of Family Environment Perceptions of Siblings (Correlational Data)

In the case of the siblings comparisons were made within the same generation. However, it should be noted that for the siblings the family of origin ratings reflect perceptions of the same family at the same life stage, whereas ratings of the current family reflect membership in different families. Because of the small sample size for brother-brother pairings ($N = 28$) gender-specific data are reported only for the brother-sister and sister-sister pairings.

TABLE 5.5. Correlation Between Parents' Perception of their *Current Family* and Offsprings' Perception of their *Family of Origin*

	Total Sample	Fathers/ Sons	Fathers/ Daughters	Mothers/ Sons	Mothers/ Daughters
Cohesion	.207***	.305**	.178	.133	.242**
Expressivity	.101*	.007	.145	.072	.131
Conflict	.206***	.234*	.241*	.072	.230**
Achievement Orientation	.217***	.282**	.012	.257*	.263**
Intellectual- Cultural	.374***	.377***	.361***	.378***	.391***
Active- Recreational	.293***	.247*	.334***	.379***	.253***
Organization	.368***	.419***	.387***	.456***	.313***
Control	.194***	.228*	.185*	.225*	.184*

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

Family of Origin

Statistically significant correlations were found for all family dimensions, ranging from a low of .191 for achievement orientation to a high of .491 for intellectual-cultural. Correlational patterns did not differ significantly by gender pairings, and the correlational values remained significantly different from zero ex-

cept for achievement orientation, which did not reach significance for the brother-sister pairs (see Table 5.6).

Current Family

The comparison of sibling perceptions of their current families yielded few significant correlations. Overall, low but significant correlations were found for the intellectual-cultural and organization dimensions. However, when broken by gender pairings, only the correlation between brothers and sisters for intellectual-cultural remained significant (see Table 5.7). Magnitudes of correlations for the perception of current families were significantly lower than for the family of origin for the total sample ($X^2[8] = 51.11$; $p < .001$), as well as for the brother-sister ($X^2[8] = 30.96$; $p < .001$) and sister-sister pairings ($X^2[8] = 21.87$; $p < .01$).

Prediction of Offspring Perception of their Current Family Environment

We next consider to what extent parental perceptions of family environment, the offsprings' perception of the environment prevailing in their family and origin, as well as the extent of contact between offspring and parents impacts on the offsprings' perception of their current family environment. Table 5.8 provides the relevant β weights and multiple correlations. The magnitude of the relationship is highly significant, and between 20% to 25% of the variance in perceptions of current family environment can be accounted for. Note that the major significant predictor for each dimension of the current family environment turns out to be the corresponding dimension in the offsprings' perception of their family of origin. However, in each case there is one or more parental perception of their current or original family that contributes significantly to the variance in the offsprings' perception. Interestingly enough, however, frequency of contact with parents contributes little variance to these predictions (see Table 5.8).

Prediction of Contact Between Parents and Offspring

It would be interesting to know also whether perceptions of family environments of parents and offspring, both current and in their family of origin, influence their reports of frequency of intrapair contact. Reports of frequency of contact were provided by both parents and offspring. The offspring reported slightly more contacts than did their parents ($p < .05$). The difference in reported contact by the two generations is greatest for the father-son pairings, but the greatest frequency of contact is reported by both parents and offspring for

TABLE 5.6. Correlation Between Siblings' Perception of their *Family of Origin*

	Total Sample	Brothers/Sisters	Sisters/Sisters
Cohesion	.390***	.427***	.370***
Expressivity	.251***	.277**	.220*
Conflict	.457***	.428***	.430***
Achievement Orientation	.169*	.119	.307**
Intellectual-Cultural	.491***	.486***	.473***
Active-Recreational	.366***	.301**	.381***
Organization	.414***	.430***	.489***
Control	.215**	.183*	.253*

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

Note - Because of the small sample size, correlations are not reported for the brother/brother subset.

TABLE 5.7. Correlation Between Siblings' Perception of their *Current Family*

	Total Sample	Brothers/Sisters	Sisters/Sisters
Cohesion	.072	-.013	..003
Expressivity	-.015	-.099	-.052
Conflict	.095	.098	.029
Achievement Orientation	.070	.059	.120
Intellectual-Cultural	.201**	.193*	.172
Active-Recreational	.099	.086	.103
Organization	.134*	.045	.146
Control	.015	.026	.028

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

Note - Because of the small sample size, correlations are not reported for the brother/brother subset.

TABLE 5.8. Regression Analyses Predicting Offsprings' Perception of their Current Family Environment (β weights: $p < .05$)

	Cohesion	Express.	Conflict	Ach. Orient.	Intel. Cult.	Act. Recr.	Organ.	Control
Offspring Family of Origin								
Cohesion	.284						-.160	
Expressivity	.142						.142	.167
Conflict			.367				-.130	-.157
Achievement Orientation				.383	.271	.215	.268	.302
Intellectual-Cultural								
Active-Recreational								
Organization								
Control								
Parent Family of Origin								
Cohesion			-.154				-.169	
Expressivity								
Conflict					-.114			
Achievement Orientation								
Intellectual-Cultural								
Active-Recreational			.134				.110	
Organization						.141		-.124
Control		.174						
Parent Current Family								
Cohesion		.169						
Expressivity								
Conflict		-.111					-.138	-.139
Achievement Orientation					.107			
Intellectual-Cultural								
Active-Recreational								
Organization								
Control								
Contact with Parent				.116		.101		
Multiple Correlation	.392	.407	.434	.446	.431	.414	.478	.486

the mother-daughter pairing. There is a significant correlation between contact reported by parents and offspring, but its magnitude ($r = .388$) is low enough to suggest that different aspects of family perception might influence contact as reported by parents and offspring. Frequency of specific types of contacts is provided in Figure 5.4.

Approximately 57% of the parents and 50% of the offspring describe the nature of their relationship as "very close." An additional 29% of the parents and 35% of the offspring describe it as "close." Nine percent of the parents and 11% of the offspring rated the relationship as "in between," whereas 3% of parent and offspring rated it as "somewhat close," and only 1.5% rated it as "not close at all."

Almost a fourth of the variance in contact can be predicted from perceptions of family environments. However, the only variable accounting for significant variance in common to parents and offspring is that of cohesion as rated for the parental family of origin (the grand-parental family for the offspring). The other significant predictors for the offspring reports of contact with parents are high cohesion in the offspring family of origin, high control in their current family, low achievement orientation in the parental family of origin, and low organization in the current parental family. By contrast, significant predictors for contact as reported by parents are low conflict and high active-recreational orientation in their families of origin, high cohesion and low expressivity in their current family, as well as high achievement and active-recreational orientation, low organization and high control in their offspring perception of the parental family (see Table 5.9).

Magnitude of Generational Differences in Perceptions of Family Environment

We now shift to the question as to differences in perceptions of family environment both within families across generations, and in the perception of differences between our study participants parental and current families. Because of the wide age range of our subjects, and to adjust for possible differences in the age span between individual parent-offspring pairs, we covaried on age of both parents and offspring. We used a MANCOVA design in which parental gender and offspring gender were the between-subject effects, generations (parents/offspring), and family stage (family of origin/current family) were treated as within-subject effects, with the family dimensions treated as dependent variables. Table 5.10 provides results of the overall MANCOVA which was then followed by univariate tests for the significant effects of interest. Main effects significant at or beyond the 5% level of confidence were obtained for gender of offspring.

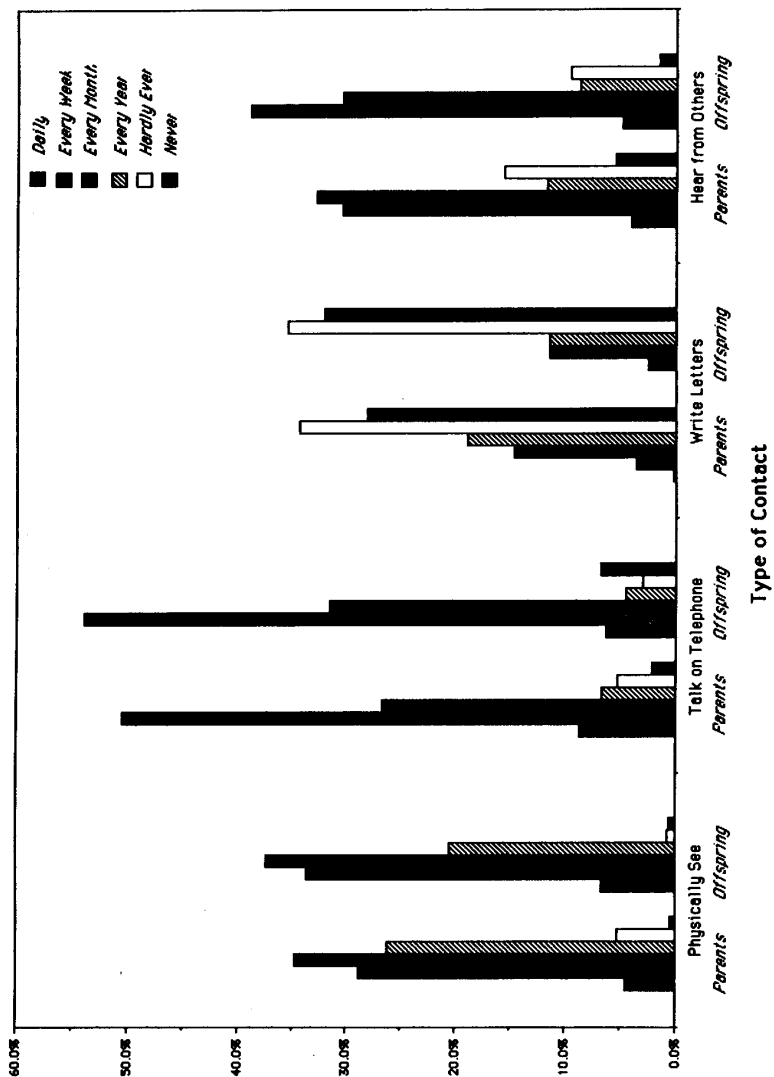


Figure 5.4. Frequency of contact between parents and offspring.

TABLE 5.9. Regression Analyses Predicting Parent-Offspring Contact (β weights: $p < .05$)

	Contact as Perceived by Offspring	Contact as Perceived by Parents
<i>Parent Family of Origin</i>		
Cohesion	.179	.251
Expressivity		
Conflict		-.148
Achievement Orientation	-.119	
Intellectual-Cultural		
Active-Recreational		.165
Organization		
Control		
<i>Parent Current Family</i>		
Cohesion		.159
Expressivity		-.146
Conflict		
Achievement Orientation		
Intellectual-Cultural		
Active-Recreational		
Organization	-.119	
Control		
<i>Offspring Family of Origin</i>		
Cohesion	.297	
Expressivity		
Conflict		
Achievement Orientation		
Intellectual-Cultural		.115
Active-Recreational		.165
Organization		-.119
Control		.124
<i>Offspring Current Family</i>		
Cohesion		
Expressivity		
Conflict		
Achievement Orientation		
Intellectual-Cultural		
Active-Recreational		
Organization		
Control	.126	
Multiple Correlation	.453	.451

TABLE 5.10. Multivariate Analysis of Variance of Family Environment Dimensions for Parental Gender, Offspring Gender, Generations and Life Stages

Effect	Rao's R
Parental Gender	.98
Offspring Gender	2.18*
Generations	32.91***
Family Stages	110.02***
Parental Gender x Offspring Gender	.72
Parental Gender x Generations	1.16
Parental Gender x Family Stages	2.46**
Offspring Gender x Family Stages	1.52
Generations x Family Stages	8.47***
Parental Gender x Offspring Gender x Generations	.69
Parental Gender x Offspring Gender x Family Stages	.92
Parental Gender x Generations x Family Stages	2.46**
Offspring Gender x Generations x Family Stages	2.20*
Parental Gender x Offspring Gender x Generations x Family Stages	1.25

* $p < .05$; ** $p < .01$; *** $p < .001$; $df = 8,422$

generations, and family stage. Two-way interactions were significant for parental gender by family stage and for generations by family stage. Furthermore, there were significant three way interactions for parental gender by generations by life stage and for offspring gender by generations by life stage.

Univariate tests suggested that the main effect for offspring sex was significant only for the dimension of achievement orientation ($p < .01$), with men re-

porting a higher overall level of achievement orientation. The main effect for generations was significant for six dimensions ($p < .001$). The offspring reported lower overall levels of family cohesion, organization, and conflict, but greater achievement, intellect-cultural, and active-recreational orientation. The family stage main effects was also significant ($p < .001$) for all dimensions except achievement orientation. Higher levels of cohesion, expressivity, conflict, intellectual-cultural, and active-recreational orientation were reported for the current family, whereas a higher level of control was attributed to the family of origin.

The parental gender by family stage interaction was statistically significant for the cohesion ($p < .01$), conflict ($p < .05$), intellectual-cultural ($p < .01$), and organization ($p < .01$) dimensions. Mothers reported significantly lower cohesion and conflict for family of origin than for the current family. Their family of origin was also described as significantly lower in active-recreational orientation, and they reported greater control for the current family.

The generations by family stage interaction is of particular interest for our purposes. Here statistically significant effects were obtained for achievement orientation ($p < .001$), intellectual-cultural orientation ($p < .001$), and control ($p < .01$). Mean scores for these dimensions by generation and family stage are shown in Figure 5.5. Achievement orientation in the current family was rated significantly lower by the parents than the offspring. Not only is intellectual-cultural orientation rated lower for the family of origin, but it is rated lowest in the parents' family of origin. Level of control was reported to be greatest by the parents for their family of origin and about equally low for the current family of both generations.

Gender differences further complicate the findings with respect to generational/family stage differences in family perceptions. Significant triple interaction for parental gender by generations by family stage ($p < .01$) were found for the intellectual-cultural orientation, organization, and control. Intellectual-cultural orientation in their present family was perceived to be higher by mothers than by fathers; organization was perceived as greater in their current family by sons than by daughters; and control was seen to be greater in the current family by fathers than by mothers. A significant triple interaction for offspring gender by generations by family stage ($p < .001$) was found for expressivity. In the latter instance, daughters reported greater expressivity in their current family than did sons.

Cohort Differences in Perceptions of Family Environment

For a better understanding of possible shifts in intrafamily shifts in perceptions of family environments of successive cohorts, we repeated the preceding analyses

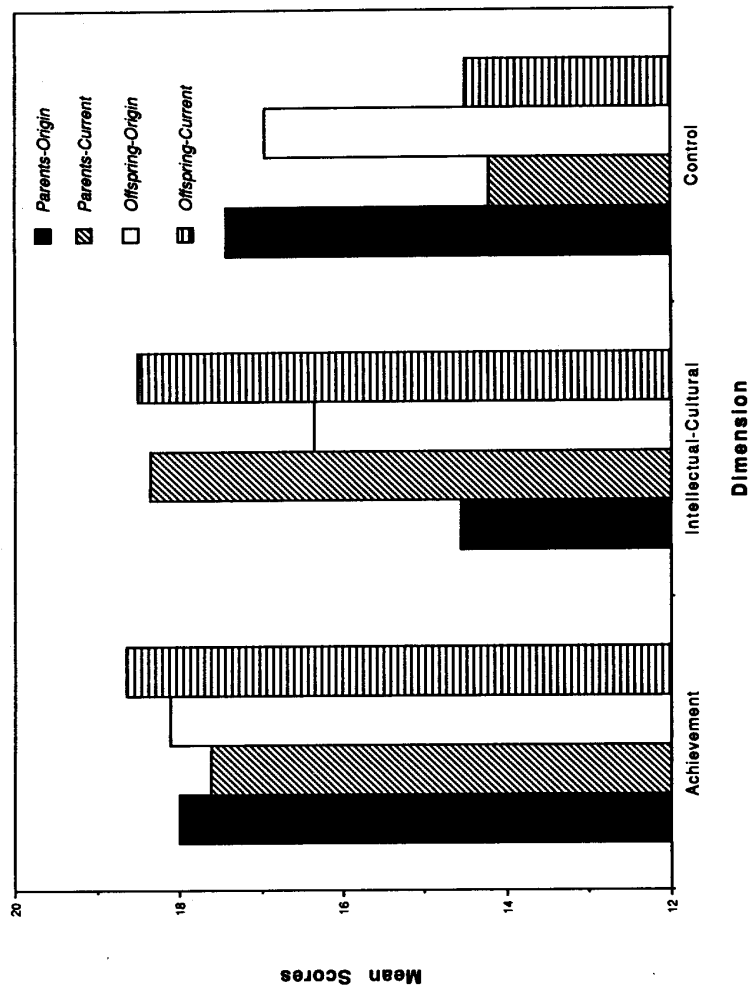


Figure 5.5. Interaction of perceived family environment by generation and life stage.

adding four levels of cohorts groupings. In terms of the years of birth of the offspring these were those born before 1941, born between 1941 and 1947, 1948 and 1954, and between 1955 and 1968. Three significant interactions involving cohort grouping were found: cohort by family stage ($p < .01$), cohort by parental gender by family stage ($p < .05$), and cohort by generation by family stage ($p < .01$).

Significant univariate effects for the cohort by family stage interaction were found for cohesion ($p < .01$) and conflict ($p < .001$). Perceptions of both dimensions for the current family environment do not differ, but there is a linear decline for successive cohorts in perceptions of cohesion and conflict in the family of origin. With respect to the triple interaction of cohort by parental gender by family stage, significant univariate effects were found for expressivity ($p < .001$) and achievement orientation ($p < .05$). These effects seem to be accounted for primarily by significant drops in expressivity in the current family for the men in the most recent cohort with a concomitant significant increase for the women in that cohort. For achievement orientation, the effects reflect a slight but systematic drop for males in the family of origin and an increase for females in the current family. Finally, the triple interaction for cohort by generation by family stage was statistically significant ($p < .05$) for intellectual-cultural orientation and organization. The former effect reflects primarily a significant increase in intellectual-cultural orientation from the oldest to the youngest cohort within the family of origin. The latter reflects the fact that while there was a general decline in perceived family organization, this decline apparently reversed for the current families of the most recent cohort.

Magnitude of Differences in Family Perceptions Within Sibling Pairs

Differences in siblings' perceptions of family environment were analyzed with a MANCOVA design in which target and relative gender were the between effects, whereas target versus relative status and family stage (family of origin/current family) were treated as within effects, again with the family dimensions treated as dependent variables. Table 5.11 provides results of the overall MANCOVA which was followed by univariate tests for the significant effects of interest. Main effects significant at or beyond the 5% level of confidence were obtained for target versus relative status and family stage. A significant two-way interaction was found for target gender by status. None of the higher order interactions was statistically significant.

Univariate main effects for study status (i.e., whether the respondents were members of the longitudinal panel or their relatives) were statistically significant for the dimensions of expressivity ($p < .01$), intellectual-cultural orientation

TABLE 5.11. Multivariate Analysis of Variance of Family Environment Dimensions for Target Sibling Gender, Relative Sibling Gender, Target vs. Relative Status and Life Stages

Effect	Rao's R
Target Gender	1.32
Relative Gender	1.64
Status	2.96**
Family Stages	41.98***
Target Gender x Relative Gender	.95
Target Gender x Status	2.41*
Target Gender x Family Stages	.75
Relative Gender x Status	1.94
Relative Gender x Family Stages	.99
Status x Family Stages	1.70
Target Gender x Relative Gender x Status	.71
Target Gender x Relative Gender x Family Stages	1.88
Target Gender x Status x Family Stages	.98
Relative Gender x Status x Family Stages	1.00
Target Gender x Relative Gender x Status x Family Stages	1.65

* $p < .05$; ** $p < .01$; *** $p < .001$; $df = 8,189$

($p < .05$), active-recreational orientation ($p < .01$), and control ($p < .01$). Our original study participants reported higher levels of expressivity, as well as intellectual-cultural, and active-recreational orientations across family of origin and current family than did their siblings. However, the relatives reported a higher overall level of control. As for the parent-offspring panel, siblings also reported significant differences in family environment between their family of origin and

their current family for all dimensions. Higher levels of cohesion, expressivity, conflict, intellectual-cultural, and active-recreational orientation were reported for the current family, whereas achievement orientation, organization, and control were rated higher in the family of origin. The target gender by status orientation was only marginally significant for cohesion, with women from the longitudinal study reporting greater family cohesion than did the other groupings.

DISCUSSION AND CONCLUSIONS

Our past work has been concerned primarily with charting the course of intellectual competence across adulthood and to gain an understanding of the antecedent conditions that lead to so much individual variation in the maintenance of optimal levels of such competence. Search for these antecedents have led to systematic explorations of macroenvironmental and microenvironmental influences that might shape these individual differences (cf. e.g., Gribbin, Schaie, & Parham, 1980; Schaie & O'Hanlon, 1990; Schaie & Schooler, 1989). At the more psychological level they have also included inquiry into individuals' perceptions of their competence in mastering environmental challenges (cf. Schaie, Gonda, & Quayhagen, 1983; Scheidt & Schaie, 1978; Willis & Schaie, 1986). However, we have not previously dealt with the possible impact of our study participants' family environment on the maintenance of intellectual competence through adulthood.

The availability of a loyal panel of long-term research participants such as that in our longitudinal studies of adult competence simplifies the logistics of acquiring family data; hence, our successful effort to recruit good-size panels of adult offspring and siblings of our longitudinal study participants. However, when we began to consider the relevance of the SLS as a potential vehicle for behavior-genetic studies of family similarity it became apparent that although we had available to us extensive longitudinal data on cognitive performance, we had no direct measures of our study participants' family environments. 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 (e.g., in the literature on personal efficacy in adults, e.g., Lachman, 1989), and we have previously obtained useful evidence on our own study participants' ability to retrospect on their prior performance in the cognitive area (Schaie, Willis, & O'Hanlon, 1994).

In earlier work with adolescent siblings, Plomin and Daniels (1987) had successfully employed a true-and-false derivative of the Moos and Moos (1986) family environment scales to assess perceptions of the common family environment. It seemed sensible, therefore, to employ these measures for our adult fam-

ily studies. However, on closer review the materials in the original scales were deemed to be too lengthy, and we proceeded with the development of briefer forms that employed Likert scales and were also phrased in such a fashion as to be useful for the assessment of families of origin and current families. The psychometric work on these scales mentioned earlier suggested that we have maintained the dimensionality of the original family environment scales both for retrospective and current reports and have thus created appropriate instruments to obtain data relevant to the questions raised here.

What we have done then is to obtain evidence with respect to similarities and differences within and across generations in the perception of eight basic dimensions of family environment. Our data could have been arrayed in a variety of complex ways (for an alternative approach cf. Rossi, 1989). We elected to analyze data for our adult siblings with respect to within generation similarities and differences, and by studying parent-offspring pairs to determine these relations across generations. Moreover, for each of these analyses we contrast perceptions of the family of origin and current family (as a within subject variable). Because of the possibility of shifts in these relationships for successive cohorts, similar to those we have often reported for cognitive variables (cf. Schaie, 1990b), we also elected to include a cohort variable, classifying our offspring into those born before World War II, those born during the war years and immediately thereafter, and into the early and late baby boomers.

CONCLUSIONS

Our first and most dramatic conclusion is that there is a clear differentiation for parents, offspring, and siblings in the perceived level of all family dimensions between the family of origin and the current family. Obviously the distance in time was greater for the parents than for the offspring, a factor in part controlled by covarying on respondents' age. Nevertheless it seems clear that our respondents perceived shifts in the quality of family environments over their own life course. They see their current families as more cohesive and expressive, but also characterized by more conflict than was true for their families of origin. What these changes reflect, of course, may simply express generally greater openness and engagement in family interactions. More intensive family interactions may also be represented by the reported increase in intellectual-cultural and active-recreational orientation from the family of origin to the current family. Concomitant with these shifts as well is the overall perception of lower levels of perceived control, family organization, and achievement orientation. Perhaps these judgments are another way of the increasing complexity of modern American families (cf. Elder, 1981; Elder, Rudkin, & Conger, this volume; Hareven, 1982).

Combined with continuing reports of ever lower reported levels of social responsibility (cf. Schaie & Parham, 1974), this may well mean that the perceived role of the 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 our parent-offspring sample is broken down into four distinct cohort groups, we noted further that the shift in perceived family level occurred primarily for perceptions of the family of origin, with much greater stability for perceptions of the current family. This is reasonable because judgments of the current family occurred at one point in time, whereas judgments with respect to the family of origin necessarily reflected different secular periods for which successive cohorts described their early family experiences.

The second conclusion, with respect to within-family similarity in the perception of family environments is that siblings (and particularly sister-sister) pairs share substantial variance in the perception of their family of origin (i.e., the family that they shared in childhood and adolescence) over all family dimensions that we examined. However, this commonality does not extend to their perception of their current (nonshared) families. The only exception to this finding was a low correlation for intellectual cultural orientation and family organization. The reported similarity of early environments might support the contention that retrospective perceptions of families over a long time interval represent the validation of the veracity of these perceptions. Conversely, the shared variance may simply indicate currently shared (and perhaps idealized) perceptions about the childhood family. However, the lack of similarity between current environments might reflect the fact that siblings do not seem to seek out to replicate these early family environments.

Third, despite the lack of similarity of current family environments in siblings, we do find that the best predictor for the level of each dimension of the current family turns out to be the corresponding level reported by each person for their family of origin. Perhaps perceptions of the family environment of origin may be one of the factors entering into marital assortativity, even though such perceptions may differ for and may differentially affect the perceptions of current family environments by different siblings.

Fourth, supporting evidence for the continuity of family values and behaviors (cf. Bengtson, 1986) is provided by our finding of substantial correlations between the parents' description of their current family environment and their offsprings' description of their family of origin. Even though there is a substantial time gap in the period rated, these two ratings do refer to the same parental family unit. These relationships were particularly strong for the three dimensions most closely reflective of value orientations (achievement, intellectual-cultural, and active-recreational) and for family organization.

Fifth, differences in perceived family environment and the magnitude of

similarity across generations will differ by gender pairing and by dimensions, although it is not surprising that the strongest relationships are observed within mother-daughter and sister-sister pairings, even though frequency of contact is only slightly greater than for other relationship combinations.

Sixth, we conclude that the intensity (frequency) of contact between parents and offspring has virtually no impact on the similarity of reported family environments. However, there were family environment dimensions (particularly level of cohesion) that could predict almost a fourth of the variance in the total family contact scores.

Finally, we suggest that the hierarchy of the magnitude of shared perceptions, from low correlations when describing nonshared environments, to moderately high correlations when describing commonly experienced environments provides at least indirect evidence for the contention that self-descriptions of family environments (perceptions) may well be useful indicators of the actually experienced environments.

We believe that in this chapter we have shown the viability of a system of describing family environments as they affect both within and across generation family similarity. As found earlier with respect to cognitive similarity, we were also able to show substantial shared variance with respect to the perceptions of the family of origin. This finding has important implications for behavior genetic studies, because it increases the plausibility of using retrospective perceptions as estimates of early shared environments. For the study of intergenerational continuity, our data support earlier literature (cf. Bengtson, 1975) that successive generations tend to evaluate their family environments in rather similar terms. Nevertheless, there is also strong evidence that perceived environments in the newly formed families of the offspring generation are not simply replications of their families of origin but may well represent the outcome of restructured family relations (cf. Green & Boxer, 1985). Hence, the perceived differences in family environments in the current families of successive generations, as well as the substantial differences reported within generations between the perceived environments in their families of origin and their current families extends the concept of developmental plasticity (Lerner, 1984) from the level of individual behavior to developmental plasticity in the value system ascribed to whole family units.

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