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The Vulnerable Age Phenomenon

By Michael Inbar

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Contents

Preface	1
Introduction: The Finding	5
Additional Evidence	11
The TALENT Data	23
Theoretical Interpretations	43
Needed Research	51
References	55

Preface

This short monograph discusses a recently documented finding which suggests that children in about the 6 to 11-year-old age bracket may be more vulnerable to crises in their environment than either younger or older youths.

At first sight the finding appears surprising. It runs counter to the image of a trouble-free latency period. However, as evidence accumulates, it seems increasingly likely that we shall have to revise this notion. Moreover, on both empirical and theoretical grounds we may have to replace it with the broader concept of *vulnerable ages of transitions*. On the basis of the presently available evidence, there would seem to be two such ages. One is in mid-adolescence, around the age of 15; by common-sense standards this finding is not very surprising. The other occurs in mid-childhood; it would appear to have been completely overlooked. For theoretical and practical reasons the latter might be the most interesting phenomenon of the two.

To date the Vulnerable Age effect has been documented for one dependent variable—school achievement (operationalized in terms of college attendance and average years of schooling completed). The original study in which the finding was first

noted was a cross-cultural study of immigrants; there is now evidence that another independent variable—geographical mobility, in particular in the United States—has the same effect. The possibility arises therefore that a variety of crises in the environment of juveniles may have heretofore unsuspected consequences. At the very least, school transfers during grade-school years would appear to be more problematic events than is usually assumed to be the case. In an age of ever-increasing geographical mobility, this fact has obvious implications and may make remedial policies necessary.

A prerequisite for such policies is a sound theoretical understanding of the problem that we are confronting; at this stage such understanding is nonexistent. Nonetheless, as I shall indicate, there are a few hypotheses which appear both reasonable and promising. But before these or other theoretical explanations are investigated, there is a task which should be given priority over all others. This task consists in the urgent need to have additional replications carried out. My overriding aim in writing this monograph is to invite such work. The reasons are twofold.

In the first place it stands to reason that before engaging in serious attempts at theory-building, we must know exactly what it is that has to be explained. This amounts to the requirement that the age curve to be interpreted be specified with as much precision as possible; one way to achieve this aim is to attempt to narrow down the 6 to 11-year age range for which the effect has been documented to date. As we shall see, there are reasons to believe that this might be feasible; indeed, there are already indications that the effect might be concentrated in the middle to upper part of the age range.

Secondly, the replications that I shall report were carried out by me. Because I was also one of the authors of the original study where the effect was first observed, none of the available evidence is as yet independent of one or both of its discoverers.

In short, this is a progress report on the evidence that I have been able to assemble in support of the existence of a Vulnerable Age effect. Should this effect be genuine, it is likely to constitute a finding of theoretical and practical consequence. Presently, however, it has first and foremost to withstand the test of independent replications. In the following pages I shall attempt to show that on both empirical and theoretical grounds it deserves such a test.

The data analyses which will be reported were carried out by means of a double blind procedure. I am indebted in this respect to Peter Abrams for carrying out the analysis of the Canadian sample. Donald H. McLaughlin, director of the Project TALENT Data Bank, was kind enough to supervise all the analyses of the TALENT Data. At times he himself made some of the runs. His help and collaboration for making the computer runs and for coding and adding to the tapes information about large-scale geographic mobility is gratefully acknowledged.

The Israeli and Canadian studies which will be discussed in the "Introduction" and in the chapter, "Additional Evidence," have already been reported elsewhere (Inbar and Adler, 1976a; Inbar, 1976). The analyses of the TALENT Data are reported here for the first time.

The preparation of the manuscript was carried out while I was a Visiting Scholar at Russell Sage Foundation. I owe a special debt of gratitude to its president, Hugh F. Cline, for constant support and encouragement. Without his sustained interest in the project it could not have been carried out. Walter L. Wallace generously spent time discussing with me the finding and its implications. I have taken advantage of some of his ideas; for the sake of his modesty and my ego, I shall use the excuse of our friendship to forego getting into unnecessary details.

Finally, I wish to express my gratitude to Ms. Hilary Silver for her valuable assistance in the library research. Mrs. Hetty de Sterke not only typed the manuscript with unusual competence, but contributed many helpful editorial comments.

Introduction: The Finding

The Vulnerable Age phenomenon was first documented in a study initiated in Israel by Chaim Adler and myself (Inbar and Adler, 1976a; 1976b). It revolves around the finding that children in about the 6 to 11-year-old age bracket may be more vulnerable to crises in their environment than either younger or older youths. In the following chapters I shall show the extent to which the finding is generalizable to Canada and to the United States and discuss some of the theoretical questions and research problems that the Vulnerable Age effect raises. As a background to this discussion, it is useful to say a few words about the original study in which the effect was first documented.

The precipitating event for the finding was a case study by Martan (1972), who had investigated a collective village in Israel. This village—Yad Rambam—had been settled in 1955–56 by Jewish immigrants from Morocco. Martan was interested in the school achievements of children as a function of the impact of the Israeli educational system on youths. To ascertain the modality of this impact, he cross-tabulated the age of the children upon immigration in 1955–56 against college attendance (in 1971). On common-sense grounds the expectation was that

a negative relationship would obtain between successful schooling (operationalized by percentage having attended college) and the age of the children upon immigration. This expectation was based on the fact that young children are commonly observed to learn a new language faster than older youths; moreover, language problems for adolescents translate as a rule into high-school test and exam failures which are immediately consequential for continued school attendance to a much greater extent than is the case for grade-school children. Furthermore, ever since the publication of the largest available survey on immigrant children at the turn of the century (Dillingham, 1911), the sociological literature explicitly or implicitly assumes an inverse relationship between age upon immigration and school achievement (e.g., Bhatnagar's *Immigrants at School*, 1970). On both intuitive and documented grounds, therefore, the anticipation was that the younger a child was when he immigrated with his family, the better his chances of school achievement would be.

Contrary to this expectation, however, Martan obtained what amounts to a *positive* relationship between age upon immigration and chances to attend college. In particular, in his sample those children who were 14 years of age or older upon immigration were quite likely in 1971 to have completed high school and have entered an institution of higher learning. Conversely, and quite surprisingly, however, their younger brothers and sisters (including those of pre-school age at the time of immigration) exhibited a marked and monotonically decreasing rate of successful schooling. On the strength of his finding, Martan concluded that a process had unfolded in Israel which had hampered the educational achievements of the settlers' *young* children.

Quite clearly, Martan's finding could reflect a process of downward mobility. It could also be idiosyncratic to a small village for any of a number of reasons. In fact, most people—including Adler and myself—felt that this was the most likely explanation for the finding. Nonetheless, because at the time of Martan's report we were planning a cross-cultural study on Moroccan immigrants, we decided to take advantage of the opportunity to scrutinize the finding. Our own impending research was about brothers and first cousins who had settled in France and Israel; it included a control group of Rumanian immigrants (Inbar and Adler, 1976b). Our sample included 238

youths who had immigrated with their families to either France or Israel, and who at the time of the research were old enough to have attended college. The analyses pertaining to Martan's finding that we performed were based on this sample.

The relationship between age upon immigration and later college attendance which obtained in these data did not turn out to be the inverse one that we had anticipated; nor did the curve resemble Martan's. Rather, the distribution was curvilinear (see Table 1). Furthermore, this relationship obtained not only

TABLE 1
Percentage of Children
Admitted to College, by Age at Date of Immigration

<i>Age at time of families' immigration</i>	<u>0-5</u>	<u>6-11</u>	<u>12-15</u>	<u>16+</u>
<i>Percentage admitted to college</i>	.26	.13 ^a	.25	.29
	(N=47)	(N=77)	(N=65)	(N=49)

SOURCE: After Inbar and Adler (1976a, Table 4).

a. χ^2 , 1 d.f. (6-11 age group versus others) = 5.23, $P < .05$.

at the aggregate level, but held also within breakdowns by subsamples (see Inbar and Adler, 1976a, Table 4). Of perhaps even greater interest was the fact that at this point a reexamination of Martan's data showed that he had mistakenly defined one of his age categories, and that in all likelihood his data too were in fact curvilinear (Inbar and Adler, 1976a, pp. 5-6). All of a sudden, therefore, my colleague and myself found ourselves confronted with the fact that we had achieved a replication that we had not expected, to an extent that we had not anticipated. Martan's mistake and his unsubstantiated conclusions were no longer of importance. What was significant is that an unexpected finding had emerged which could be of some consequence.

The analyses which we carried out within the constraints of the limited sample that was available revealed a few additional trends. These can be summarized as follows.

1. The Vulnerable Age phenomenon, while generally predominant in the 6 to 11-year age group of immigrants, was stronger for the 12 to 15-year age group in one of the three subsamples. This suggested the possibility that

chronological age and school (or social) structures may interact to produce the Vulnerable Age effect; alternatively, a second problematic period—possibly independent of the first—might exist in mid-adolescence.

2. The strength of the effects was always sufficient to offset the known phenomenon of older children of-immigrants (16 years old or more in this case) being sent to work.
3. At the same time, and quite unexpectedly, the effect was undetectable at below the college level; that is to say, with other cutting points (i.e., earlier measures) of school achievement, no trend was distinguishable. We shall see later that the Canadian data cast light on this puzzling fact.

As a tentative theoretical explanation for the Vulnerable Age phenomenon, Adler and I sketched out a rudimentary model; its essence is that while school transfers are stressful for all youths, this fact is more likely to go unnoticed for grade-school children. We reasoned that the desocialization-resocialization paradigm found in many immigrant studies may be adequate to explain the Vulnerable Age phenomenon.¹

This paradigm sees social adaptation to a new environment as involving a fundamental and usually painful process of unlearning and relearning, as well as a process which depends on social power and resources. It is noteworthy, however, that the unlearning-relearning process is probably not applicable to infants and/or very young children, at least not as far as a school environment would be concerned. For children of school age, however, it clearly is. For these children, then, the difficulties which accompany a radical change of school environment may be relatively similar, in any case much more similar than are the resources that they marshal to ease the crisis. If so, our finding would be directly interpretable; it would simply be a consequence of differential resources under conditions of high but fairly uniform duress.

To buttress the socialization-resocialization paradigm, consider the following. It is generally true that the older a child, the less his parents can help him directly with his school work, irrespective of country of residence. Also, however, the older the child, the more articulate he is and the more attention and power he commands inside as well as outside his family. Such factors combine to make older children better equipped to deal with school problems they face upon immigration than are

1. See, for example, Curle (1947), Eisenstadt (1954), and Bar-Yosef (1968).

younger children. These observations specifically suggest that an older child is likely to lose less in terms of direct help from his parents, is likely to articulate his problems to a greater extent, and is able to command more attention and help than younger children.

According to this view, in the very early years of immigration in particular, the problems encountered by young children of school age, especially grade-school children, are likely to be given low priority by many families or go unnoticed altogether. In addition, these children are likely to have little or no independent school-related resources (e.g., peer tutoring). The expected effect of such processes on children who are at a cognitive and school-socialization stage of development would be compatible with the trend exhibited by our Israeli data. (Inbar and Adler, 1976a, pp. 7–8.)

In addition to this environmental explanation, we also recognized that a developmental interference might be responsible for the Vulnerable Age phenomenon. For instance, in the light of some recent sociolinguistic findings (Entwisle and Frasure, 1974), it is quite possible that language development is affected by cross-cultural school transfers during grade-school years. I shall elaborate this interpretation later.

Because, as we shall see, there is now evidence that the Vulnerable Age phenomenon holds also in the case of within-country geographic mobility, and because the finding for youths in mid-adolescence has recurred, it seems likely that these explanations will have to be revised; in addition, it may be, and I shall indeed suggest, that each effect calls for an explanation of its own.

Adler and I made it a point to emphasize that given the lack of prior empirical and theoretical evidence, the first order of priority was to replicate the Vulnerable Age finding. Operationally, this meant recognizing the fact that it is useful to postpone engaging in serious theoretical attempts until the shape of the curve is better specified and, even more importantly, until plausible artifacts are discarded.

With this order of priority in mind, one possible artifact of importance could already be checked with the original data. As the reader will have noticed, the form of the trend observed in Table 1 suggests that the shape of the distribution could be the result of the operation of the first/late-born effect. In particular, older children also being likely to be first-born, it is conceivable that the trend observed could be due to this effect. As the analyses showed, however, this was not the case; the

shape of the distribution turned out to be independent of birth order, in particular of primogeniture (see Table 2).

TABLE 2
Percentage of Immigrants' Children Admitted to College by Age at Time of Immigration and Birth-Order

<u>Age at time of families' immigration</u>	<i>Percentages admitted to college</i>	
	<i>First-born</i>	<i>Later-born</i>
0-5	.40(N=5)	.24(N=42)
6-11	.00(N=16)	.16(N=61)
12-15	.22(N=23)	.26(N=42)
16+	.36(N=25)	.21(N=24)
Total	.23(N=69)	.21(N=169)

SOURCE: Inbar and Adler (1976a, Table 5).

This being so a series of additional tasks came to mind which required further research.

The first was, of course, to determine whether the finding could be replicated, in particular with North American data. The second was to further control for possible artifacts, for example, age cohort and SES effects. The third was to document the generality of the phenomenon in terms of causal variables, in terms of populations, and in terms of scope of consequences. That is to say, would the effect hold for migrations? Would it hold for boys as well as for girls? Were variables other than college attendance affected?

In the following pages I shall report the results of two additional studies, and the answers that they presently suggest to some of these and related questions.

Additional Evidence

The first piece of additional evidence bearing on the Vulnerable Age phenomenon stems from a replication carried out with the Canadian Census of 1971.²

By implication, the preceding discussion has indicated that attempting to replicate the Vulnerable Age phenomenon requires that a very specific set of data be available. In particular, with “crises” defined as immigration or migration, the following two conditions must be met.

1. *Sample characteristics.* The sample must be of immigrants or migrants, and the respondents must be old enough to have had a chance to attend college; allowing for a margin of security, this means that the sample must be made of respondents who were 19 to 20 years old or more at the time of the interview.
 2. *Variables and level of measurement.* a) For each respondent it is necessary to either have information about his/her age upon immigration or migration, or,
2. Public Use Sample Data (Individual File for Metropolitan Areas) derived from the 1971 Canadian Census of Population supplied by Statistics Canada. The responsibility for the use and interpretation of these data is entirely that of the author.

alternatively, data about his/her present age and the date of immigration or migration, so as to be able to generate this information; b) it is also necessary to have explicit information about the respondents' college attendance.

As I shall elaborate later, these minimal conditions are generally not found in most available large-scale data banks. In the 1971 Canadian Census of Population they are—at least to some extent.

The reasons for this qualified statement about the 1971 Census are twofold. In the first place, there is no usable information for migrants. The replication can therefore be for immigrants only. Even for them, however, age upon entering Canada is unknown. What is available is the period of immigration, coded as follows.³

1. Before 1946
2. 1946–1955
3. 1956–1960
4. 1961–1965
5. 1966
6. 1967–1968
7. 1969
8. 1970
9. 1971
10. Canadian born

This variable, in combination with the age of the respondents (in 1971), can nonetheless generate the requested information. The procedure has been reported in detail in Inbar (1976); it allows a cohort analysis of the respondents who were 20, 21, and 22 years old in 1971. In particular, for each of these cohorts, age upon immigration can be determined according to three age brackets which approximate the trichotomy 0–5, 6–11, 12+ years in which we are interested. It should be mentioned, however, that even these categories are not without an element of imprecision. The reason is that the age of the respondents which is reported in the Canadian Census is age at last birthday. That is to say, an unknown number of persons were born in 1970, rather than in 1971. This factor of incertitude generates

3. 1971 Census of Canada, *Public Use Sample Tapes, User Documentation (Draft)*, Statistics Canada, March 1975, p. 4.2.15.

TABLE 3
Age Categories upon Immigration to Canada of Three Cohorts of Respondents

<i>Age at time of Census (1971)</i>			
<i>A. Individual cohorts</i>		<i>Age upon immigration</i>	
20	0-(4-5)	(5-6)—(9-10)	(10-11)—(15-16)
21	0-(5-6)	(6-7)—(10-11)	(11-12)—(16-17)
22	0-(6-7)	(7-8)—(11-12)	(12-13)—(17-18)
<i>B. Consolidate cohorts</i>			
20 + 21	0-5	6-10	11-16
21 + 22	0-6	7-11	12-17

the (trichotomized) actual age categories upon immigration which are summarized in Table 3A; the parentheses indicate the age-range of incertitude.

Clearly, the 21-year-old cohort yields the best age trichotomization for the purpose at hand. However, depending upon one's assumptions about the distribution of dates of birth, the cohorts of 20 and 22 years old also present advantages when the lower and upper boundaries of the age range with which we are concerned are considered. This being so, the analyses were always carried out twice: once for the consolidated cohort of 20 and 21 years old, and once for the consolidated cohort of 21 and 22 years old. This procedure had the additional advantages of having a built-in test for the robustness of the results, and of increasing the number of cases available for the analyses, a consideration of importance when the number of cases shrank due to the introduction of control variables. The categories of age upon immigration generated when the cohorts were consolidated are presented in Table 3B.⁴

With these clarifications in mind, the results of the replication (which have been reported in detail elsewhere—Inbar, 1976) can be summarized as follows.

In the first place, the U-shaped or J-shaped curve, whose replication was attempted, obtained in each cohort (see Table 4). The results, however, did not reach the .05 level of statistical significance in any individual cohort. At the same time, as a pattern, it should be noted that the probability of the trend recurring in all three cohorts by chance is less than .05 (1/27).

4. Merging two consecutive age cohorts generates a one-year overlap between age categories upon immigration (see Table 3A); I have taken this common value to represent the modal age for the category boundaries of the consolidated cohorts.

TABLE 4
Percentage of College Attendance among Immigrants of Both Sexes
by Age upon Immigration, and by Cohort

<i>Cohort (age at time of Census)</i>	<i>Age upon immigration</i>		
	<i>0-(4-5)</i>	<i>(5-6)-(9-10)</i>	<i>(10-11)-(15-16)</i>
20 (N=126)	.37 (N=43)	.20 (N=51)	.31 (N=32)
21 (N=151)	.33 (N=69)	.18 (N=44)	.21 (N=38)
22 (N=139)	.27 (N=64)	.11 (N=35)	.13 (N=40)

SOURCE: Public Use Sample Data, Individual File for Metropolitan Areas, Canadian Census of 1971.

Second, the weakness of the trend could be traced to an interaction by sexes. Indeed, controlling for this variable, no evidence was found of a Vulnerable Age effect for girls (see Table 5B). On the other hand, the predicted relationship recurred for boys and was in this case both sizeable and robust. In comparison with the children who immigrated during their grade-school years, younger and older male immigrants exhibited a rate of college attendance which was at least 50 percent higher; this relationship was unaffected by the combination of age cohorts which was considered (see Table 5A).

TABLE 5
Percentage of College Attendance among Immigrants, by Sex
and Age upon Immigration

<i>Cohorts (age at time of Census)</i>	<i>Modal age upon immigration</i>		
	<i>0-5</i>	<i>6-10</i>	<i>11-16</i>
A. <i>Males</i>			
20 + 21 (N=106)	.48 (N=40)	.18 (N=38)	.32 (N=28)
21 + 22 (N=92)	.40 (N=43)	.23 (N=26)	.35 (N=23)
B. <i>Females</i>			
20 + 21 (N=123)	.20 (N=51)	.22 (N=41)	.23 (N=31)
21 + 22 (N=131)	.15 (N=59)	.12 (N=33)	.08 (N=39)

SOURCE: Inbar (1976, Table 8).

N.B.: The N's for boys and girls do not exactly add up to the total N's reported in Table 4. The reason is that in Table 4 some respondents were already heads of households. These respondents were omitted from later analyses to allow a control by parental SES, which in the Census is only possible for non-heads of households.

Third, the effect now specified for boys, was shown to be independent of the mother tongue of the respondents (mostly English, followed by Italian; only some 5 percent having a French-speaking background); see Table 6.

TABLE 6
Percentage of College Attendance among Male Immigrants,
by Mother Tongue and Age upon Immigration

Cohorts (age at time of Census)	Modal age upon immigration		
	0-5	6-10	11-16
A. <u>Mother tongue: English</u>			
20 + 21 (N=52)	.50 (N=20)	.29 (N=21)	.36 (N=11)
	<u>0-6</u>	<u>7-11</u>	<u>12-17</u>
21 + 22 (N=47)	.27 (N=26)	.17 (N=12)	.22 (N=9)
B. <u>Mother tongue: Other</u>			
20 + 21 (N=84)	.47 (N=36)	.09 (N=23)	.24 (N=25)
	<u>0-6</u>	<u>7-11</u>	<u>12-17</u>
21 + 22 (N=87)	.45 (N=42)	.24 (N=21)	.29 (N=24)

SOURCE: Inbar (1976, Table 11).

Finally, the effect was shown to be independent of levels of SES (see Inbar, 1976, Table 10). At the same time, the analyses suggested that the Vulnerable Age phenomenon was quite likely to be obscured by confounding factors wherever the SES background of the respondents was insufficiently controlled. This was shown to be a likely occurrence when high-school measures of school achievements are used as a dependent variable, in particular high-school completion (see Inbar, 1976, pp. 13-16, especially Tables 12 and 14).

In short, the finding was replicated. Moreover, it emerged from this study as being both generalized and specified. In terms of generalization, there was now evidence that the effect is not likely to be cohort, SES, or culture (language) specific. In terms of specification, the Canadian data suggest that the effect is probably restricted to boys. We shall see later that these conclusions appear to be valid—with one qualification: the Vulnerable Age phenomenon, although less consistently found among girls, does not appear to be strictly limited to males.

This being so, it may now be useful to confront an epistemological question of importance.

Assuming that the finding is a genuine one—as obviously each replication makes this increasingly likely to be the case—how could it have gone unnoticed for so long?

Interestingly, delving into the literature and searching through data banks suggest an intriguing answer to this question. The answer may even constitute—in a manner of speaking—additional evidence *by default* for the finding itself. Specifically, it would seem that the effect could hardly have been documented in the past, given the manner in which the data which are required for observing the effect are usually collected and analyzed. This point is obviously of extreme importance and deserves some elaboration.

As a case in point consider the Canadian Census of 1971. The Metropolitan tape released for public use contains 53,173 respondents. Of them 13,153 (close to 25 percent) are immigrants. This is an extremely high rate, which can only be expected to be found in very few modern societies. Nonetheless, the analyses that I have reported ended up being based on a couple of hundred cases. This stems from the fact that in the Canadian Census periods of immigration have only been recorded in very rough categories, making most cases unusable. In most countries even this type of information is not available; rather, the breakdown is simply by national/foreign-born, occasionally with information about country or continent or origin. Another problem is that large-scale data bases often use collapsed age categories, a frequent one being 0 to 14; the reason for this categorization is that such data are usually collected in connection with studies or surveys which focus on aspects of the labor market. In combination, the lack of information about either or both the precise age or date of immigration of the respondent makes it next to impossible to even attempt to observe the Vulnerable Age phenomenon in most large-scale data banks which are listed.⁵ This holds also true if one attempts to shift the focus from the effect of immigration to that of simply migrating. In this case the usual information which is available is merely whether or not the respondent has moved in recent years. Sometimes, but not always, there is also information about the number of moves; in this case whenever the

5. I am extremely indebted in this respect to Mrs. Alice Robbin of the Computer Center of the Department of Sociology, The University of Wisconsin, who searched nationally and worldwide for the existence of usable data banks. It is through her efforts that I became aware of the existence of the Canadian Census of 1971.

information includes dates, it is about the latest moves. The Canadian Census of 1971 is an example in point of some of these shortcomings. (See fields 52, 53, and 54 of the Metropolitan Area File, Statistics Canada, 1971.)

Other potentially relevant data banks have an additional weakness. They focus on youths who are at most of high-school age. In this case the problem for the analyses in which we are interested is compounded by the inadequacy of the dependent variable. As I have indicated, the Vulnerable Age effect is very likely to be obscured at this level by SES factors which are particularly potent at the onset of opportunities to enter the labor market and which require, in order to be neutralized, powerful controls indeed. (See Inbar, 1976, Table 14.) That is to say, in the quasi-totality of the listed data banks the Vulnerable Age phenomenon could not have been observed. Documenting the effect requires not only an appropriate set of data—a very rare occurrence in itself—but also controls and nonparametric analyses which are most unlikely to be performed together if the phenomenon is not hypothesized in advance. To date, however, it has not been. As a result, as we have just seen, neither was it likely to have been found by accident.

In this respect it may be of interest to note that I did come across a couple of studies in which the effect could theoretically have been noticed. What did actually occur in these studies is intriguing. First, it is noteworthy that in both cases there is evidence that the effect may have been present. In each case, however, the author either overlooked the finding or discarded it as a random fluctuation. The first case occurs in Bhatnagar's *Immigrants at School* (1970, p. 97). In this study Bhatnagar presents data about the exact age of immigration to England of a sample of West Indian and Cypriot high-school students; at one point he also relates this variable to a generalized scale of adjustment. Bhatnagar's aim in this specific analysis was to test the usual negative relationship which is assumed to obtain between age upon immigration and school-related variables, in this case adjustment. Interestingly, he did not find evidence of such a relationship. Accordingly, and after recalling his specific source for the hypothesis, he concludes that past evidence "would lead to a prediction that age at the time of immigration is negatively related to adjustment. The data gathered in this study does not support the view" (Bhatnagar, 1970, p. 97). Of course, should his distribution have been

curvilinear, this is precisely the result that one would have anticipated, *given that the conclusion is based on correlations*. Unfortunately, Bhatnagar does not present the raw data, and neither does he elaborate on his unexpected failure to replicate a well-established relationship.

In the second study, the author explicitly noted what may be the first published evidence in support of the Vulnerable Age phenomenon. However, in this case the author (Lee, 1956) chose to pursue his unrelated concern and to discard the finding as a likely random fluctuation. The study is a replication of Klineberg's finding (Klineberg, 1935) about the increase in IQ evidenced by Negro children who migrated to the North. It should be noted that the independent variable in this study is migration rather than immigration. Also, the dependent variable is not school attendance but the standardized IQ score obtained at test and retest times by the respondents. Keeping these differences in mind, the author presents in tabular form (Lee, 1956, p. 435) the IQ scores of his subjects as a function of the age (grade) at which the migrant children entered the northern school system. Lee's data span the age range 6 to 14 and are summarized in Table 7.

Interestingly, looking at column 9A one notes two dips in the distribution: one at ages 8 to 9.5, the other at ages 12 to 14. Because the scores are standardized, such comparisons are meaningful; at the same time it should be noted that they might be lacking validity due to the possible confounding effect of retesting. This difficulty, however, can be overcome by considering separately the results of the first test, then the results of the second test, etc.

The IQ scores obtained in the first test by all the subjects are those which appear in the main diagonal of Table 7. Clearly, and although the difference is admittedly small, controlling in this manner for the test-retest effect shows that the group which emerges with the lowest standardized score (86.3) is the group of children who migrated between the ages of 8 and 9.5. Furthermore, pursuing this analysis one step further, it is possible to compare among themselves those children who were retested the same number of times. For the 12 to 14-year-olds no such comparison is possible for lack of data. For the others, however, at least one comparison of this kind is feasible by considering the diagonal which runs from columns 2B to 9A. By the way Table 7 is set up, this diagonal is made of the scores

TABLE 7

Mean "IQ's" on Philadelphia Test of Mental and Verbal Ability of Southern-Born Negro Children, by Age (Grade) at which They Entered the Philadelphia School System, and by Grades at which They Were Tested and Retested

Grade in which the children entered the Philadelphia school system	Age range	N	Grade in which test was taken			Test-retest improvement between 1st and 2nd test		
			1A	2B	4B		6B	9A
1A	6	182	86.5	89.3	91.8	93.3	92.8	+2.8
1B-2B	6.5-7.5	109	86.7	86.7	88.6	90.9	90.5	+1.9
3A-4B	8-9.5	199			86.3	87.2	89.4	+0.9
5A-6B	10-11.5	221				88.2	90.2	+2.0
7A-9A	12-14	219					87.4	—

SOURCE: After Lee (1956, p. 435, Table 1).

of the children who at the time had been given exactly one retest. Inspecting this diagonal clearly shows that the group of 8 to 9.5-year-olds stands out again as having the lowest IQ scores (87.2). The disutility in this sample of migrating at this age can be summarized in a single measure: the difference between the first and second test. This difference is indicative of a stable handicap; it is presented in the last column of Table 7.

Lee's study is intriguing on several accounts. In the first place, the age group of migrant children which is the most affected falls well within the expected age range; it may even be a first indication that the phenomenon that we are discussing could be narrowed down in the future.⁶ Not less interesting is the fact that the shape of the distribution did not escape Lee's attention. He chose, however, to discard the finding as an exception to the trend he was attempting to establish—without further explanation (Lee, 1956, p. 434).

It is unfortunate that the data do not allow a longer and more complete trend analysis of the IQ scores controlled for the test-retest effect. This is particularly true in the case of the 12 to 14-year-olds for which not even one retest score is available. In the light of the evidence found in one of the subsamples of the original study on the Vulnerable Age effect (see the "Introduction"), it would have been intriguing indeed to find that this age group does also exhibit a lower retest score. The structural view that I shall discuss in the next chapter suggests, however, that we should not expect this to have been the case in Lee's data, because this study held constant the school-level subdivision. I shall elaborate this point shortly.

Be this as it may, and unless Lee's distribution is a coincidence, there are grounds to believe that the Vulnerable Age phenomenon might be more general than the two immigration studies that I have discussed may suggest. The effect appears likely to be a function of migrations as well as immigrations, and if so, perhaps more generally of crises in the children's environment (e.g., divorces, parental deaths, school transfers, etc.); in turn, these crises might very well affect more than simply school-related variables. At least these are possibilities

6. We should of course be prepared for possible age shifts as a function of structural and developmental changes. Lee's study was carried out in the early 1950s and on a sample of Negro children. The Vulnerable Age for non-minority children and in the 1970s might conceivably be concentrated at somewhat different points of the age continuum.

which should not be discarded without investigation.

Before speculating, however, it is obviously necessary to first establish on firmer grounds than accidental evidence the fact that the Vulnerable Age effect indeed holds in the case of the first conceptual step toward a generalization, i.e., in the case of migrants. Furthermore, the results should be further controlled for possible artifacts. This is the task that I shall now undertake with the TALENT Data.

The TALENT Data

The data bank known as TALENT was started in 1960. It is a nationally representative sample of United States high school students in that year. To date there have been three follow-up studies of the original sample. The last was the eleven-year follow-up which at the time of this writing has been carried out for three grades: the 10th, 11th, and 12th.

The master sample includes over 400,000 cases. It is kept and managed in Palo Alto by the American Institutes for Research. The staff in charge of the data bank has developed weighting procedures to overcome the problem of sample mortality in the follow-ups. They have also developed various standard scales, among them an SES and an education variable.

In the following analyses we shall be concerned with the eleven-year follow-up. The samples are those which are standardly made available by the American Institutes for Research to investigators; the N's are about 3,000 cases per grade. Each sample has been calibrated to be nationally representative by the above-mentioned weighting procedure. Details about the sample, the weighting procedures, and a copy of the questionnaires can be found in the *Handbook of the*

Project TALENT Data Bank (American Institutes for Research, 1972).

For the purpose at hand it is useful to note the exact wording and coding of two key variables.

The dependent variable, years of schooling, was made available coded as follows.

<i>Coding</i>		<i>Meaning</i>
0	=	up to grade 8
1	=	up to grade 9
2	=	up to grade 10
3	=	up to grade 11
4	=	up to grade 12, without diploma
5	=	high school diploma only
6	=	high school diploma plus some further education (but no college)
7	=	high school diploma plus some college
8	=	college graduate
9	=	college graduate plus some graduate school education
10	=	college graduate plus Master's degree or equivalent
11	=	Beyond Master's degree but without Ph.D., M.D., or law degree
12	=	Doctorate or law degree

The independent variable—migrations—was operationalized by the answers to a question which was included in the 1960 student questionnaire. The question—SIB167—reads as follows.

How long have you lived in this community?

- 1—One year or less
- 2—More than 1 year, but no more than 3 years
- 3—More than 3 years, but no more than 5 years
- 4—More than 5 years, but no more than 10 years
- 5—More than 10 years, but not all my life
- 6—All my life.

(American Institutes for Research, 1972, p. 53.)

Under the assumption that 10th-graders are on the average 16 years of age, this question allows to determine for the three cohorts with which we shall be concerned—the age brackets of migration which are reproduced in Table 8.

TABLE 8

Age Categories upon Migration Generated by the Answers to Question SIB167 (see Text), for the Respondents who were 10th, 11th, and 12th-Graders in 1960

<i>Cohort</i>	<i>Answers to question SIB167</i>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6(Never)</u>
10th-graders	15-15.5	13-14	11-12	6-10	1-5	—
11th-graders	16-16.5	14-15	12-13	7-11	1-6	—
12th-graders	17-17.5	15-16	13-14	8-12	1-7	—

From Table 8 it is apparent that the age categories in which we are primarily interested are approximated with various degrees of accuracy in each of the three cohorts. For instance, the pre-school age category is best approximated for the 10th-graders, and less accurately so for the 11th and 12th-graders (see Table 8, column 5); on the strength of Lee's study, however, this is likely not to prove too harmful inasmuch as there are grounds to believe that the Vulnerable Age effect may begin at about the age of 8. From a different perspective, and for reasons that I shall elaborate in the theoretical discussion, the choice of age brackets should additionally allow to capture the effect of moving from one level of the educational system to another, e.g., from elementary school to high school. Such structural transitions are known to have an attrition effect on cohorts and should be distinguished from the Vulnerable Age phenomenon proper.

In the United States, transition points in the educational structure can occur at various ages.⁷ In some school systems one transition occurs at grade 7 and the other at grade 10 (i.e., at ages 13 and 16 respectively). Another widespread structure has only one transition point in grade 9, i.e., at age 15. In addition, at ages 15-16 the end of compulsory education constitutes a selective transition in and of itself. But the consideration of importance is that the earliest commonly found transition point occurs at age 13. For a careful test of the

7. Should one prefer to assume that 10th-graders are on the average 15 rather than 16 years old, all the ages of transition which will now be discussed should be reduced by one year. In this case, however, so should be the age categories presented in Table 8 and in the tables which follow. Because of this built-in relationship and of the fact that in the analyses which will follow the comparisons are always relational (i.e., relative to adjacent categories), the validity of these analyses is independent of the assumption which is chosen. It should be kept in mind, however, that given the choice that I have made, all the vulnerable ages of transition which will be discussed represent an upper age limit estimate of the age of the respondents at the time of interest.

hypothesis at hand it is consequently necessary to avoid depressing the age bracket which is critical for the Vulnerable Age test by inadvertently including in it the potentially confounding effect of the beginning of high-school selection. In other words, we must be careful not to have 13-year-olds or older children in any of the age groups in which on the basis of the previous studies we expect to find evidence of the Vulnerable Age effect.

Operationally, this requirement, together with the constraints of the data, means that in the TALENT samples the confirmation of the 6 to 11-year-old Vulnerable Age hypothesis requires that dips in years of schooling be found in the following categories of Table 8.

- A) *In the 10th grade*: in categories 4 and 3 as opposed to 2 and 5.
- B) *In the 11th grade*: in category 4 as opposed to categories 3 and 5.
- C) *In the 12th grade*: in category 4 as opposed to categories 3 and 5.

On the other hand, because in the United States the most significant transition to a higher level of the school structure occurs upon entering high school proper, i.e., at the ages of 15 (in the 8-4 systems), and 16 (in the 6-3-3 systems), and because of the end of compulsory education, the selection explanation suggests that we should expect to find evidence of an independent and relative structurally induced dip in the following categories of Table 8.

- A) *In the 10th grade*: in category 1 as opposed to 2.
- B) *In the 11th grade*: in categories 2 and 1 as opposed to category 3.
- C) *In the 12th grade*: in category 2 as opposed to categories 1 and 3.

These predictions are summarized in Table 9. The structural predictions are obviously incidental to our main concern. They are useful, however, because they will put the findings pertaining to the Vulnerable Age effect in mid-childhood in perspective and will document another possible reason for its having been overlooked in the past.

With the hypothesis listed in Table 9 in mind, the aims of the analyses are fourfold.

TABLE 9

Hypotheses to be Tested about Average Years of Schooling Completed by Children who Migrated at Various Ages

<i>Cohort</i>	<i>Vulnerable age predictions</i>	<i>Structural predictions</i>
10th-graders	5,2 > 3,4 ^a (A)	2 > 1 (D)
11th-graders	5,3 > 4 (B)	3 > 1,2 (E)
12-graders	5,3 > 4 (C)	1,3 > 2 (F)

a. The numbers in this table are those of the columns listed in Table 8. This inequality, for instance, reads as follows: the average levels of schooling completed by the respondents who migrated between the ages of 1 to 5 (column 5) or 13–14 (column 2) are greater than the averages of those who migrated between the ages of 11–12 (column 3) or 6–10 (column 4).

1. To examine the extent to which the Vulnerable Age finding can be generalized to the United States.
2. To examine the extent to which it holds in the case of migrations.
3. To diversify the criterion variable by using a measure of school achievement which encompasses the *whole* educational cycle.
4. To refine the findings by beginning to differentiate between effects which are anticipated on the basis of the selective structure of school systems, from those which require a different explanation.

We can now turn to the results of the analyses. The overall distribution of means of levels of schooling achieved by the various groups of migrants in each of the three cohorts is presented in Table 10. For the reader's convenience, Tables 11 and 12 present the same data split-up according to the age range which is relevant to the test of the Vulnerable Age phenomenon and to that of the selectivity of secondary education, together with the effect predicted from these explanations.

Considering first the extent to which the hypotheses listed in Table 9 are borne out by the findings, Table 11 shows that, although the differences are at times small, all the predictions based on the existence of a Vulnerable Age effect are consistently supported by the data, without exception. As a trend (whose probability of occurring by chance is less than .05 for these data alone, and infinitesimal if we consider the results of Table 10 together with those obtained in the Canadian study), it would seem that the existence of a pre-adolescent vulnerable age is now, if not established, at least highly probable.

TABLE 10
Average Levels of Education Achieved by Migrants and Non-Migrants
by Cohort and Age upon Migration in Childhood

Cohort	A. Key to age categories upon migration (see Table 8)					Mean	Standard Deviation	Never Moved 6	Grand Mean	Standard Deviation
	1	2	3	4	5					
10th-graders	15-15.5	13-14	11-12	6-10	1-5					
11th-graders	16-16.5	14-15	12-13	7-11	1-6					
12th-graders	17-17.5	15-16	13-14	8-12	1-7					
B. Data										
10th-graders (N)	6.44 (133)	6.68 (189)	6.55 (239)	6.48 (362)	6.69 (520)	6.59 (1443)	.10	6.49 (1330)	6.54 (2773)	.09
11th-graders (N)	6.57 (145)	6.72 (189)	6.83 (228)	6.79 (475)	6.89 (654)	6.81 (1691)	.09	6.71 (1537)	6.76 (3228)	.08
12th-graders (N)	6.85 (84)	6.77 (142)	6.85 (210)	6.82 (422)	6.95 (746)	6.88 (1604)	.07	6.72 (1668)	6.80 (3272)	.09

TABLE 11
Visual Partition of Table 10: Elementary School Age Range

Cohort	A. Key to age categories upon migration, and predicted dips (underlined)					Mean (untruncated distribution— see Table 10)	Standard Deviation
	2	3	4	5			
10-graders	13-14	11-12	6-10	5			
11th-graders		12-13	7-11	1-6			
12th-graders		13-14	<u>8-12</u>	1-7			
B. Data and matching dips (underlined)							
10-graders	6.68	6.55	6.48	6.69	6.59	.10	
11th-graders		6.83	6.79	6.89	6.81	.09	
12-graders		6.85	<u>6.82</u>	6.95	6.88	.07	

TABLE 12
 Visual Partition of Table 10: High-School Age Range

A. <i>Key to age categories upon migration and predicted dips</i> (<i>underlined</i>)				<i>Mean</i> (<i>untruncated</i> <i>distribution—</i> <i>see Table 10</i>)	<i>Standard</i> <i>Deviation</i>
<i>Cohort</i>	<i>1</i>	<i>2</i>	<i>3</i>		
10th-graders	15- <u>15.5</u>	13-14			
11th-graders	<u>16-16.5</u>	14-15	12-13		
12th-graders	17-17.5	<u>15-16</u>	13-14		
B. <i>Data and matching dips</i> (<i>underlined</i>)					
10th-graders	6.44	<u>6.68</u>		6.59	.10
11th-graders	<u>6.57</u>	6.72	6.83	6.81	.09
12th-graders	6.85	<u>6.77</u>	6.85	6.88	.07

In terms of the magnitude of the effect, it lies between one-fifth of a standard deviation to about one standard deviation below the grand mean (of the untruncated distribution), depending on the cohort which is considered. In comparison to the age categories which are adjacent to those where the Vulnerable Age phenomenon is predicted to occur, the differences are of course larger. It should be noted, incidentally, that to the extent that there is a selectivity effect from one level to another of school systems, the size of the Vulnerable Age phenomenon is underestimated in function of the independent dampening effect that this selection may start having on 13-year-olds (column 2 for 10th-graders, and column 3 for 11th and 12th-graders; see Table 11).

In this connection Table 12 shows that as far as the upper level of high-school selection is concerned (i.e., for 15 and 16-year olds), the anticipated effect is clearly documented; indeed, all the differences are in the predicted direction (see Table 12).

In short, the image which emerges is that the Vulnerable Age and the selectivity of various levels of school structures create for learning an empirical sequence of vulnerable ages of transition. This conclusion is strengthened by a theoretically derived additional test of the hypotheses that we have just examined.

Consider the wording of the question about migrations (see page 24). It is imprecise about the periods of migration, a shortcoming which is found in most data banks; in point of fact, it is fortunate that this question is as detailed as it is and that it was included in the study, otherwise the TALENT Data would have been useless for the purpose at hand. But the question has another weakness: it does not allow to distinguish between uprooting in some real sense and trivial geographical moves; it does not allow to distinguish either between one or repeated moves. In short, the independent variable is noisy, a fact which raises two possibilities. The first is that the results may be artifactual. The second is that the underlying phenomena may be powerful enough to be noticeable despite the inadequacies of the measure.

In an attempt to refine this measure, one could reason that the importance of moving has two major components: frequency and geo-cultural magnitude. The frequency variable does not require any elaboration. The geo-cultural continuum, on the

other hand, can be conceptualized as having immigration at one of its ends and a trivial move at the other.

For lack of data, I shall have nothing to say about the frequency variable. The magnitude of the geo-cultural transitions, however, can be estimated in all three studies where the Vulnerable Age phenomenon has been documented to date. In the Israeli and Canadian immigration studies this magnitude lies at one extreme of the continuum; in the TALENT Data it lies somewhere along the continuum, in part because we are dealing with the concept of migration, but also because we have a diluted measure of this variable. Conceptually, therefore, a better definition of migrations—for instance, migrations across large geographical boundaries—should yield a magnitude which falls between these two points. In theory, we would thus expect that in this case the size of the Vulnerable Age effect should also be intermediate.

Because the sets of data are not directly comparable, this test cannot be fully carried out. The TALENT Data, however, allow to determine who are the respondents for whom migration took place from one large geographical area of the United States to another. This in itself is of interest because on the basis of the foregoing reasoning we would expect that in this subsample the Vulnerable Age effect should be present in a somewhat stronger form. This derivation, however, applies only to the segment of the curve where a developmental interference is suspected to have occurred. Indeed, in the case of the effect of school selection no such accentuation of the dips can be predicted. This follows from the consideration that developmental patterns are relatively invariant, much more so in any case than school structures. Hence, the size of an interference effect on a developmental pattern may be expected to be primarily a function of the magnitude of the interference—a magnitude which in the present case is estimated by the size of the geo-cultural move. Large geographical subdivisions, however, do not bear any predictable relationship to the selectivity structure and policies of school systems, inasmuch as these vary no less within than across regions; furthermore, some migrations are likely to be undertaken by parents with precisely the aim of overcoming the difficulties that high-school students experience at certain selective junctions of their secondary school career. Together, the non-specificity by region of high school selectivity and the reactive nature of some migrations to this obstacle, on the one

hand, and the probable developmental nature of the problem for the 6 to 11-year-old migrants, on the other, suggest that concentrating on interregional moves should help clarify the existence of a Vulnerable Age in mid-childhood and, at the same time, differentiate further between the developmental and selective explanations which may apply at different points of the age curve.

This logically derived test was carried out, and its results will now be presented. For the purpose of the analyses, the following six geographical regions were used.

1. New England and Middle Atlantic States (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania).
2. East and West North Central States (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas).
3. South Atlantic, East South Central, and West South Central States (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas).
4. Mountain States (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada).
5. Pacific States (Washington, Oregon, California, Hawaii, Alaska).
6. United States possession (Puerto Rico, Guam, etc.) and Foreign.⁸

Focusing then on the subsample of respondents who migrated from one of these regions to another, Table 13 presents the overall distributions which obtain in their case. For visual convenience, these data are again split up according to the age range which is relevant to the test of the Vulnerable Age phenomenon proper (Table 14) and to that of the selectivity of secondary education (Table 15). Each of these two tables also presents the magnitude of the migration effect (relative to the adjacent age categories) for the whole sample (from Tables 11 and 12) and in the present case.

8. This turned out to be a residual category with an insignificant number of cases.

TABLE 13
Average Levels of Education Achieved by Inter-Regional Migrants,
by Cohort and Age upon Migration in Childhood

<i>Cohort</i>	<i>A. Key to age categories upon migration (see Table 8)</i>					<i>Mean</i>	<i>Standard Deviation</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>		
10th-graders	15-15.5	13-14	11-12	6-10	1-5		
11th-graders	16-16.5	14-15	12-13	7-11	1-6		
12th-graders	17-17.5	15-16	13-14	8-12	1-7		
<i>B. Data</i>							
10th-graders (N)	6.66 (37)	6.83 (48)	6.52 (59)	6.45 (80)	6.96 (114)	6.71 (338)	.21
11th-graders (N)	6.49 (33)	6.87 (49)	6.97 (50)	6.90 (94)	7.04 (109)	6.91 (335)	.15
12th-graders (N)	7.07 (15)	7.12 (42)	7.11 (48)	6.82 (84)	7.33 (124)	7.12 (313)	.20

TABLE 14
Visual Partition of Table 13: Elementary School Age Range

A. *Key to age categories upon migration, and predicted dips (underlined)*

Cohort	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	Mean (untruncated distribution- see Table 13)	Standard Deviation
10th-graders	13-14	<u>11-12</u>	<u>6-10</u>	1-5	X	X
11th-graders		<u>12-13</u>	<u>7-11</u>	1-6		
12th-graders		13-14	<u>8-12</u>	1-7		
<hr/>						
B. <i>Data and matching dips (underlined)</i>						
10th-graders	6.83	<u>6.52</u>	<u>6.45</u>	6.96	6.71	.21
11th-graders		<u>6.97</u>	<u>6.90</u>	7.04	6.91	.15
12th-graders		7.11	<u>6.82</u>	7.33	7.12	.20

C. *Comparative size of the effect relative to adjacent category*

10th-graders (whole sample) ^a	+ .13	—	—	+ .21
10th-graders (present sample)	+ .31	—	—	+ .51
11th-graders (whole sample) ^a		+ .04	—	+ .10
11th-graders (present sample)		+ .07	—	+ .14
12th-graders (whole sample) ^a		+ .03	—	+ .13
12th-graders (present sample)		+ .29	—	+ .51

a. See Table 11.

Considering first the Vulnerable Age in childhood, Table 14B shows that the predicted effect recurs among the interregional migrants. The critical test, however, lies in the magnitude of the effect. Table 14C shows that without exception the effect is magnified for all three cohorts. Thus, in the case of interregional moves the 12th-graders who migrated at ages 1-7 and 13-14 achieved a level of schooling which was respectively .51 and .29 points higher than that of the children who migrated during the Vulnerable Age period (see Table 14C); in the case of the whole sample, these differences are only .13 and .03 points, respectively. The same pattern obtains for 11th and 10th-graders; in particular, in the latter case the children who made an interregional move at age 1-5 achieved a level of schooling which is .51 point above that of the 6 to 10-year-old migrants, and the children who moved at age 13-14 achieved a level which is .31 point above that of the 11 to 12-year-old

migrants; the comparable differences in the case of the whole sample are only .21 and .13, respectively.

In short, and to the extent that interregional moves subsume greater disruptions in the children's homes and environments than lesser moves, the finding would seem to lend strong additional support to the existence of a Vulnerable Age in mid-childhood.

Turning now to the selection effect of schools, Table 15 shows that in this case no consistent trend emerges. In the first place the selection pattern itself is inconsistent; in particular in the case of the 12th-graders the empirical dip does not occur in the predicted category (see Table 15A and 15B); as we shall shortly see this is due to an interaction effect. More importantly, where the effect does recur (in the cohorts of 10th and 11th-graders), its relationship to magnitude of migration is erratic. Thus in the whole sample of 10th-graders, those respondents who moved at age 13–14 achieved a level of schooling which is .24 of a point higher than that of the 15 to 15.5-year-old migrants. In the case of interregional migrations no accentuation of the effect is noticeable; on the contrary, it is now only .17 (see Table 15C). In the case of the 11th-graders (for the whole sample) the 12 to 13-year-old migrants achieved a level of school education which is .26 of a point higher than that of the 16 to 16.5 movers, and .11 higher than that of the 14 to 15-year-old migrants (see Table 15C); for interregional movers the comparable differences are .48 and .10, respectively. That is to say, in one case we find an accentuated effect, in the other not.

In short, no demonstrable relation exists between size of geographical mobility and variations in the effect of the selectivity of schools. If anything, the data would suggest a mild inverse relationship. Such a trend would be consistent with a reactive interpretation of the cause of migrations in the case of some parents of high-school students. It would also be consistent with what would be expected if most parents are aware of the selection problem; on psychological grounds the salience of this problem is not unlikely to be a function of the geographical size of the move contemplated, and the magnitude of migrations may well therefore be related to the efforts which are made to overcome the anticipated difficulties.

Be this as it may, the Vulnerable Age effect and the effect of school structures bear a predictable relationship to migrations; these effects are analytically different and appear to be

TABLE 15
Visual Partition of Table 13: High-School Age Range

A. <i>Key to age categories upon migration, and predicted dips</i> (<i>underlined</i>)					
<i>Cohort</i>	<u>1</u>	<u>2</u>	<u>3</u>	Mean (<i>untruncated</i> <i>distribution-</i> <i>see Table 13</i>)	Standard <i>Deviation</i>
10th-graders	<u>15-15.5</u>	<u>13-14</u>			
11th-graders	<u>16-16.5</u>	<u>14-15</u>	12-13		
12th-graders	<u>17-17.5</u>	<u>15-16</u>	13-14		
B. <i>Data and matching dips</i> (<i>underlined</i>)					
10th-graders	<u>6.66</u>	<u>6.83</u>		6.71	.21
11th-graders	<u>6.49</u>	<u>6.87</u>	6.97	6.91	.15
12th-graders	<u>7.07</u>	<u>7.12</u>	7.11	7.12	.20
C. <i>Comparative size of the effect relative to adjacent category</i>					
10th-graders (whole sample) ^a	—	+.24			
10th-graders (present sample)	—	+.17			
11th-graders (whole sample) ^a	—	—	(+.26,+.11) ^b		
11th-graders (present sample)	—	—	(+.48,+.10) ^b		
12th-graders (whole sample) ^a	+.08	—	+.08		
12th-graders (present sample)	-.05	—	-.01		

a. See Table 12.

b. Category 3 relative to categories 1 and 2, respectively.

empirically distinguishable. This is clearly an important result which should help avoid confusions in the future.

I shall now summarize some additional findings of interest.

One is negative in nature. As in the case of the Canadian study, no systematic pattern of effect by SES emerged in the present data. However, Table 16, which presents the SES distributions for the cohort of 10th-graders (interregional movers) documents a shift which is of interest. This shift occurs in the Vulnerable Age range for high SES respondents—between categories 4 and 3 (see Table 16); the shift seems also to be characteristic of boys, as we shall shortly see.

Because of the constraints of the data, the trend can only be documented in the case of the 10th-graders and is therefore difficult to interpret. It could be indicative of maturation differences among levels of SES (or sexes), or of earlier entrance

into junior high school. It could also indicate, however, that the Vulnerable Age phenomenon is concentrated in the upper part of the 6 to 11-year age range, and that the reversal in the rank order of the two categories which span the Vulnerable Age period is a function of fluctuations in dates of birth (and perhaps also of maturation) within, say, the age range 8 to 11. Which of these or other interpretations is the correct one is a question which cannot be answered with the present data.

Another result of interest consists of the partial replication of the finding documented in the Canadian study about sex differences. As it turns out, in the TALENT Data too the results of interregional migrations—upon which much of my argument is based—hold consistently for boys, with only one exception. This occurs among the 11th-graders and concerns the effect of school selection; specifically, the expected dip occurs only among the 16 to 16.5-year-olds, rather than both among them and the 14 to 15-year-olds. The relevant data are presented in Table 17.

For girls, the picture is more complex. The Vulnerable Age effect in mid-childhood is present among 12th-graders. It is also present among 10th-graders; in this case, however, it is limited to the 6 to 10-year age group. Among 11th-graders, finally, it is absent. With regard to school selection, the effect is only present in the case of the 11th-graders. The relevant data are presented in Table 18.

Two conclusions appear to be warranted by the analyses by sex. The first is that, as the Canadian study has suggested, there are important sex differences for the phenomena under consideration. The second is that these differences are less pronounced for the Vulnerable Age phenomenon in mid-childhood than is the case for the effect of school structures. I shall return to the question of sex differences, in particular for the Vulnerable Age phenomenon, in the next chapter.

The last finding of interest is that in all three cohorts the average level of schooling achieved by non-movers is consistently lower than that of the migrants. This trend can be observed in Table 10, by comparing the average of the respondents who never moved (category 6) with the average of the movers, which appears two columns to the left of category 6. In part, of course, this difference reflects an SES effect. Controlling for levels of SES, however, does not completely reduce the differences (data not presented); in any case, never does the average of non-movers rise above that of the migrants. This finding may be due to an

TABLE 16
Average Levels of Education Achieved by the Cohort of 10th-Graders
(Interregional Movers) by Parental SES, and by Age
upon Migration in Childhood

		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Mean</u>	<u>Standard Deviation</u>
		<u>15-15.5</u>	<u>13-14</u>	<u>11-12</u>	<u>6-10</u>	<u>1-5</u>		
A. Key to age categories, with Vulnerable Age predictions (underlined twice), and school selection predictions (underlined once)								
B. Data and matching dips (underlined)								
<u>SES Level</u>								
low		5.05	5.95	5.31	5.21	5.42	5.40	.29
(N)		(14)	(17)	(12)	(23)	(27)	(93)	
medium		6.59	6.82	6.40	5.89	6.82	6.47	.39
(N)		(5)	(13)	(20)	(27)	(35)	(100)	
high		7.50	7.58	6.97	7.56	7.92	7.57	.34
(N)		(20)	(20)	(30)	(32)	(55)	(157)	

TABLE 17

Average Levels of Education Achieved by Male Interregional Migrants, by Cohort and Age upon Migration in Childhood

Cohort	A. Key to age categories, with <u>Vulnerable Age predictions</u> (<u>underlined twice</u>), and <u>school selection predictions</u> (<u>underlined once</u>)					Mean	Standard Deviation
	1	2	3	4	5		
10th-graders	15- <u>15.5</u>	13- <u>14</u>	11- <u>12</u>	6- <u>10</u>	1- <u>5</u>		
11th-graders	16- <u>16.5</u>	14- <u>15</u>	12- <u>13</u>	7- <u>11</u>	1- <u>6</u>		
12th-graders	17- <u>17.5</u>	15- <u>16</u>	13- <u>14</u>	8- <u>12</u>	1- <u>7</u>		
B. Data and matching dips (<u>underlined</u>)							
10th-graders	6.53	7.25	6.63	7.12	7.77	7.21	.47
(N)	(19)	(27)	(30)	(41)	(60)	(177)	
11th-graders	6.77	7.59	7.35	7.02	7.41	7.25	.24
(N)	(14)	(19)	(25)	(50)	(59)	(167)	
12th-graders	7.31	6.85	7.51	7.42	6.68	7.47	.25
(N)	(6)	(18)	(27)	(41)	(66)	(158)	

TABLE 18

Average Levels of Education Achieved by Female Interregional Migrants, by Cohort and Age upon Migration in Childhood

Cohort	A. Key to age categories, with Vulnerable Age predictions (underlined twice), and school selection predictions (underlined once)					Mean	Standard Deviation
	1	2	3	4	5		
10th-graders	15- <u>15.5</u>	13-14	<u>11-12</u>	6-10	1-5		
11th-graders	<u>16-16.5</u>	14-15	<u>12-13</u>	<u>7-11</u>	1-6		
12th-graders	17- <u>17.5</u>	<u>15-16</u>	13-14	<u>8-12</u>	1-7		
B. Data and matching dips (underlined)							
10th-graders	6.79	6.30	6.41	5.75	6.07	6.16	.32
(N)	(18)	(21)	(29)	(39)	(54)	(161)	
11th-graders	6.28	6.41	6.59	6.77	6.60	6.57	.16
(N)	(19)	(30)	(25)	(44)	(50)	(168)	
12th-graders	6.91	7.32	6.59	6.25	6.94	6.76	.37
(N)	(9)	(24)	(21)	(43)	(58)	(155)	

insufficient control of the respondents' socioeconomic background. It could also reflect the frequently documented fact that adult migrants are a better motivated group than non-migrants (see, for example, Spilerman and Habib, 1976, pp. 804-805). Even within SES levels one could therefore expect that their children should also be better motivated, including scholastically, than the children of non-migrants. The finding, however, could also have a very different kind of explanation. It could stem from the fact that moving has an *enrichment* effect at certain points of the age curve. In point of fact, some experts believe that the most important learning experience during puberty—roughly around the ages of 12 to 13—consists in being exposed to cultural and social stimuli (Maeroff, 1975). Migrations obviously mediate such experiences, and the shape of the age curves that we have examined could therefore reflect this process, as well as those that we have discussed. I shall not presently elaborate on this possibility, although it is useful to keep it in mind for the discussion of needed research to which the last chapter is devoted.

Theoretical Interpretations

It is probably fair to say that one conclusion which emerges from the evidence that we have reviewed is that a Vulnerable Age effect in mid-childhood is clearly and recurrently observable for boys; for girls too, the effect is noticeable, although not invariably so. A school selection effect is distinguishable as well; however, its impact on migrants is somewhat less predictable for boys, and even less so for girls, than is the Vulnerable Age phenomenon proper.

These, then, are the trends which require a theoretical explanation. In this chapter I shall attempt to provide a few plausible interpretations of this kind. I wish to stress, however, that I shall engage in this task with the utmost caution. My motive is to avoid repeating some of the mistakes made in the context of another serendipitous finding—the first-born effect. As is well known, the effect—although of great importance in itself—does not hold for only children, and hence much of the early theoretical explanations are groundless. The lesson is, of course, that the first task with a serendipitous finding is to specify its exact nature. In our case this means that the first order of priority is to determine the exact shape of the age curve

which has to be explained. Before this is done, theoretical explanations can only be speculations. The point of this remark is that we are at the earliest stage of the documentation of a finding. We are therefore moving on uncharted territory. The cues presently available are not only few in number, but also noisy, due to both the limited number of replications performed and the imperfections of the age categories which were available for the analyses. Accordingly, what is presently needed above all is replications. My overriding aim in writing this monograph is to invite such work; it is emphatically not to provide a theoretical explanation for the finding.

The task of reliably specifying the age curve which will ultimately have to be explained (perhaps a different one for different societies), is likely, however, to take years of concerted efforts. Some theoretical guidelines—no matter how tentative—are therefore necessary along the way. The following ideas are offered to fulfill this function. They are of a general nature by design.

Theoretically, then, the explanations which might account for the Vulnerable Age phenomenon fall into two categories: one is based on developmental factors, the other on environmental ones. I shall illustrate in turn the form that these explanations could take.

One developmental process whose disruption might conceivably account for the Vulnerable Age effect in mid-childhood could be cognitive. Specifically, recent research suggests that language and cognitive development may interact in an as yet unspecified but important way between the ages of 6 and 11. As opposed to the long-held belief that fundamental syntax and grammar are acquired by age 5, the latest studies show that a considerable amount of improvement occurs between ages 5 and at least 9 (Frasure and Entwisle, 1973; Entwisle and Frasure, 1974). It should be noted that the age of 9 does not constitute a ceiling; it simply represents the age limit which has presently been investigated. In future research the true limit may have to be extended to the age of 10, or perhaps even 11. To an extent which remains to be determined, the vulnerability of children in mid-childhood to significant crises and changes in their social or school environments may therefore reflect an interference with language development which might be quite general.

Another developmental explanation could be social in nature.

It was advanced more than two decades ago by Henry Stack Sullivan. Sullivan (1953) suggests that one stage of development, the juvenile era, is critical; as he puts it, “the importance of the juvenile era can scarcely be exaggerated, since it is the actual time for becoming social” (Sullivan, 1953, p. 227). This era lasts from about the entrance in school to around the age of 10; it is bounded by the chum period with which it overlaps from around ages 8.5 to 10. The juvenile era is a prerequisite for establishing fundamental patterns of social adjustment. Sullivan has spelled out how the disruption of this era usually comes about.

One of the things which time and time again has shown itself to have been quite disastrous in the history of patients, was the social mobility of the parents, which took the juvenile from one school to another at frequent intervals. . . . Other things being equal, if one is getting on at all fortunately in juvenile society, it is a very good thing to stay in that group of juveniles throughout the period, or certainly until near the end of the juvenile era. . . . continuous upheavals in schooling—and this is strikingly true with service personnel—is apt to leave a very considerable handicap in this and subsequent development. (Sullivan, 1953, pp. 241–242.)

In other words, as far as the number of environmental disruptions and school transfers are concerned, there is both evidence and a theory for the existence of a Vulnerable Age at almost precisely the points of the age curve with which we are concerned. It is entirely conceivable, of course, that a single but very drastic change of social and/or school environment should have all or part of the effects that milder repetitive changes or transfers have. In point of fact, it is curious that this possibility does not seem to have been entertained. It is even more bewildering that Sullivan’s advice as it stands commands so little attention. To illustrate the extent of this disregard, the reader is asked forgiveness for a short digression. I recently came across the advice that the American Movers Conference gives to parents. It may be enlightening to quote from a leaflet distributed by this organization.

Each child, because of differences in age and life experience, will view the move differently . . . the pre-school child can pose a real problem. . . .

The grade school-age child has a more highly developed sense of self. . . . His developing sense of discovery may make the

idea of moving exciting to him. While he will be leaving friends, they will not be the deep, vital friendships of older children. . . .

The teenager, of course, usually has enough problems even in a stable environment. (From a leaflet of the American Movers Conference, undated, obtained by mail, March 1976.)

I do not know whether this image of a problematic age in adolescence and pre-school years, as opposed to a non-problematic one during grade-school years, is widely shared or not. As I have indicated in the "Introduction," on the surface of it the grade-school years are likely to appear to be tranquil years. But theoretically and empirically, as we have seen, there is evidence suggesting that, stereotypes to the contrary, mid-childhood years may be as much if not more developmentally problematic than other ages.

Returning to our main concern, it is noteworthy that for the age range 8.5 to 10, Sullivan explicitly states that on the basis of his data his generalizations hold *for males only* (Sullivan 1953, p. 248; also p. 249). Because Sullivan does not elaborate, neither can I. Nonetheless, the relevance of Sullivan's remark for the finding under discussion and for future theoretical work is obvious.

Still another developmental explanation could be related to the disruption of the transition to autonomy—the acceptance of cooperation and social control through socially agreed-upon rules—which has been identified by Piaget as occurring between the ages of 7 and 11 (Piaget, 1965). Because in this chapter my aim is notional, I shall not attempt to go into the details of this explanation. It is however of interest to note that for this process there would again appear to be important sex differences inasmuch as for girls the transition is more rapid and seems to be over by age 8, almost at the onset of the stage of cooperation (Piaget, 1965, p. 80). Of course, for the purpose at hand it might very well turn out that Sullivan's and Piaget's interpretations are the two sides of the same coin. Indeed, from the standpoint of the Vulnerable Age phenomenon, Sullivan would appear to have stressed the independent variable, and Piaget the dependent one. In substance, however, and granting small variations, it is intriguing to note how much their observations agree in form and content, down to specific sex differences which in the light of the empirical findings that we have discussed are obviously of great interest.

Turning now to environmental factors, Table 19 illustrates the type of effect that one might anticipate this class of variables to have. This table presents the survival and transition rates in high school, year after year, of two selected cohorts. The data are from Germany and are taken from the sequence of fifteen cohorts presented by Boudon (1974, p. 57, Table 3.11). The cohorts are the first and last for which there is complete information from the 7th grade to graduation.

TABLE 19
Survival and Transition Rates in Secondary School, for
Two Selected Cohorts, Germany

Number of students	1952		1959	
	Survival Rates	Transition Rates	Survival Rates	Transition Rates
	14,077		10,170	
"Quarta"				
7th grade	100	→	100	→
8th grade	89.1	→	90.7	→
9th grade	78.1	→	82.7	→
10th grade	72.9	→	77.8	→
11th grade	45.7	→	67.0	→
12th grade	42.7	→	62.0	→
"Oberprima"				
13th grade	40.3	→	58.1	→
High-school degree	38.5	→	55.7	→
		89.1		90.7
		87.7		91.2
		93.3		94.1
		62.7		86.1
		93.4		92.5
		94.4		93.7
		95.5		95.9

SOURCE: After Boudon (1974, p. 57, Table 3.11).

A feature of this table is that for the 1952 cohort there is a clear drop in transition rates between the 10th and 11th grades. In the 1959 cohort, on the other hand, the drop is almost unnoticeable. The reason for this difference is that "a traditional turning point, the *mittlere Reife* (literally: middle maturation), underwent drastic change over the period. . . . [Up to about] 1955, the *mittlere Reife* was perceived by many students as a terminal point, but some years later it had become just an intermediate step" (Boudon, 1974, p. 56).

The sociological explanation of this phenomenon is that from the standpoint of the students and their families each year is a decision point where success in school (marks) and socioeconomic costs and opportunities are taken into account to decide whether or not to remain in school. Transitions from one formally or normatively defined level (or sublevel) of schooling to another are also decision points of this kind, only more so. This fact is well documented for non-movers in all educational systems, as Table 19 illustrates. It stands to reason, therefore, that the effect should also be found among migrants and immigrants, although in this case it is reasonable to anticipate that it should be magnified.

In other words, the theoretical expectation is that all age curves, including of course those of migrant or immigrant adolescents, should exhibit one or more vulnerable ages of transition, the specific age or ages being a function of the formal and normative structure of the school systems under consideration.

It should be noted that, given the structure of the selective process in school systems, we would expect the school structure effect to apply only to teenagers.⁹ Additionally, this structural effect may conceivably be accentuated by a developmental interference; however, I have not yet found in the literature a clearcut set of consequences that one could expect from school disruptions occurring within a specific age range during adolescence. This question obviously deserves further theoretical attention.

In any case, we have seen that there is some evidence of a structural effect of schools in the TALENT Data. This segment of the curve, however, was not of primary interest in the studies that I have carried out and was consequently the least analyzed. Nonetheless, the results clearly point to one additional reason which is likely to account for the fact that the Vulnerable Age in mid-childhood has been overlooked for so long. Indeed, depending

9. However, I should like to mention a variant of a structural explanation which might have some bearing on the Vulnerable Age phenomenon in grade school. In certain schools what has been learned in a given grade is reviewed in the next grade at the beginning of the school year; in certain schools it is not, or there is one or more breach of continuity—one often noted occurring in the 3rd grade. It could be that in such school systems being transferred at this juncture constitutes a handicap of some consequence. For another variant of an explanation which is environmental in nature, see the original interpretation advanced by Adler and myself (“Introduction”).

on the number and intensity of the selection points and on random fluctuations in the data, the segment of the curve pertaining to high school years clearly can at times overshadow the Vulnerable Age effect and even impart to the whole curve a shape which makes unavoidable the conclusion that schooling and age upon migration or immigration are inversely related. In this sense, the Israeli and Canadian studies may have been fortunate occurrences.

To conclude this brief theoretical sketch, I should like to mention that in the last analysis the main contribution of the studies that I have discussed may well be that they will lead to the rediscovery of theoretical propositions buried for decades in the child development literature. Whether this will turn out to be the case or not is too early to say. It is noteworthy, however, that some of these propositions are phrased in terms which qualify them as predictions. The curves that I have presented may have merely documented their accuracy.

For some reason, however, these predictions were not taken up as a challenge by sociologists. On the basis of the data that I have presented and in an age when geographical mobility keeps growing, I would argue that now they should be.

Needed Research

As I have repeatedly stated, the purpose of this volume is to invite replications of the findings that I have reported. Should I have made my case, I would like to mention a few topics and issues which, to my mind, deserve particular attention in future research.

To put these research problems into perspective, it is useful to distinguish among the tasks of validation, explication, and intervention. (The reader looking for a more detailed discussion of developmental research paradigms than the one which follows, is invited to consult Baltes and Goulet, 1971, and Baltes and Schaie, 1973.)

Validation

The first task is of course to further document and validate the age curves that we have been discussing. In this respect the following aims stand out as deserving preferential consideration.

REFINEMENT OF MEASUREMENT. In the studies that we have reviewed the age categories upon migration or immigration were always age ranges. A satisfactory documentation of the

Vulnerable Age phenomenon and of the effect of school structures calls, however, for more detailed information about the exact age at which a move took place; the estimation of the magnitude of the environmental change or geo-cultural move must also be improved beyond the dichotomous measure which was used in the analyses of the TALENT Data. In short, future research should attempt to improve and refine the operationalization and measurement of the independent variables.

LARGER SAMPLES. As we have seen, the statistical significance of the findings which were reported could only be established as a trend. This was primarily due to the fact that as soon as controls were introduced into the analyses, the size of the subsamples became rather small. One consequence of this fact is that the magnitude of the effect with which we are dealing is not very clear. Future research should attempt to clarify this question.

GENERALIZATION. As part of the documentation-validation effort, the findings should also be generalized to their natural limits. We have seen that they appear to hold in the case of immigrations and migrations; in terms of consequences, an effect on schooling, and perhaps also on IQ, is noticeable. These independent and dependent variables, however, may not be the only ones which are related to the findings under discussion as causes or effects. Furthermore, there is evidence that males and females are differentially affected. Together, these considerations suggest that for guiding serious attempts at theory-building, the scope of the effects—in terms of the variables and the populations affected—must be further clarified.

These three aims could be advanced in a first step by cross-sectional studies. The size and composition of the samples which are needed are largely a matter of choice. There is only one constraint. The respondents must be old enough to permit the proper measurement of the dependent variables which are assumed to have been affected (e.g., schooling). Presently, there is also one desirable feature that the samples should have: they should be large. Indeed, the time has come when possible confounding variables should be *simultaneously* controlled in one set of data. We have seen that although there is some overlap between the studies that we have reviewed, this has not been the case to date; the aims listed also implicitly or explicitly assume the availability of large samples.

With regard to the questions which should be included in such

studies, they have a rather simple format. In summary form, they fall under the following five headings.

1. A set of background questions, e.g., date of birth, parental SES, etc.
2. A set of questions to determine the exact age at the time of a move or crisis.
3. A set of questions to evaluate the frequency and intensity of these moves and crises.
4. A set of questions about possible mediating variables, (e.g., loss of friends, specific school difficulties, etc.)
5. A set of questions about the dependent variables of interest.

Such questions can easily be included in any survey.

Conceptually, the last set is contemporary in nature and does not present any methodological problems. The other sets are theoretically about historical events. Except for set number 4, however, the questions involve little measurement difficulties, inasmuch as they are about events which are unlikely to be distorted by memory and which can be ascertained by simple or well-tested questions (e.g., fathers' occupation). The intervening variables are another matter. But their investigation comes properly under the heading of explication.

Explication

Once an age curve is well specified, its interpretation is more than a continuation of research. In many ways the explication work which must follow starts a new phase of enquiry.

Cross-sectional studies can be appropriate for documenting an age function. Its genuine interpretation, however, usually requires experimental work and longitudinal studies. In terms of research goals, the emphasis shifts from external to internal validity, in an endless spiral (Campbell and Stanley, 1963).

In the present case, and assuming that a reliably estimated age curve is available, the major problem is to discard the notion of chronological age. Indeed, in the last analysis age is simply a summarizing measure of an ordered succession of substantive events. As Flavell (1963, p. 36) put it, "Age is a vehicle rather than a cause in itself."

The translation of a chronological age range into questions of developmental processes which are affected, and of the

substantive events which affect them, rests on theoretical considerations. Presently, it would seem that these could be best tested and that new insights could be sought in a series of micro studies.

Such studies might usefully have three focal points: 1) the children themselves; 2) their parents; and 3) the teachers and school environments of the youths.

Methodologically, it is probably too early to adopt the experimental and simulation paradigm suggested by Baltes and Goulet (1971). On the other hand, studies in depth (e.g., classroom observations, sociometric measures before and after postulated crises, etc.), and longitudinal case studies would appear to be both feasible and promising. Among other things, such studies could conceivably cast light on the question of whether or not the Vulnerable Age in mid-childhood is followed by a period where changes in environment constitute enriching rather than disruptive experiences (see the chapter, "The TALENT Data").

Intervention

This last task marks the end of what can be said in this small volume, because it is presently a heading with no substance. Indeed, the necessity and feasibility of interventions, in the sense of preventive and remedial steps, depend on both the validity of the findings that I have discussed and on their theoretical interpretation. Presently, therefore, we could only speculate about the nature, feasibility, and effectiveness of such steps. Obviously, however, should the answers to the previous research question warrant it, these issues and the evaluation research that they imply will rapidly become salient.

Before this stage is reached, however, we are confronted by a research agenda which is already enormous. Its size is a measure of the extent to which the sociological study of the phenomena that I have documented is overdue—provided, of course, that the findings reported withstand the acid test of independent replications.

I should like to conclude with the question that this last remark raises.

By definition, it is a question that I cannot answer. It is therefore also the first which must now be answered.

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