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Future-Time Perspective in Adolescence: The Present of Things Future Revisited

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Several theorists have suggested that the observed changes in adolescent future-time perspective are due to the emergence of formal-operations reasoning [e.g., T. J. Cottle and S. Klineberg (1974), The Present of Things Future, *Free Press—Macmillan, New York; P. Fraisse (1963),* The Psychology of Time, *Harper & Row, New York; H. Hartmann (1958),* Ego Psychology and the Problem of Adaptation, *International Universities Press, New York; J. Piaget (1968),* Six Psychological Studies, *Vintage Book, New York]. Using a cross-sectional sample of 60 Caucasian adolescents, the present study was designed to examine this hypostatized interrelation. Data obtained through individual interviews provide only limited support for a cognitive hypothesis. As predicted, older students showed greater future extension and the more cognitively advanced students proved better able to project a set of events into the distant future. However, neither the older, nor the more cognitively advanced, students projected a greater number or a more consistent set of future events than did their respective counterparts. Moreover, analysis of the types of events projected obtained significance only for grade level. The findings are discussed from a contextualist perspective, within which consideration is given to the influence of experiential and life-span status factors.*

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INTRODUCTION

Researchers have frequently observed an increased consciousness of time and temporal phenomena during adolescence (e.g., Butler, 1968; Eson and Greenfield, 1962; Lewin, 1946; Neugarten, 1968; Wallace, 1956). Most typically, this change in temporal perspective is characterized by an orientational shift from the immediacy of the present, and the lure of the past, to greater concern for future roles and experience (Cottle, 1976; Cottle and Klineberg, 1974; Moerk, 1974; Moerk and Becker, 1971; Montemayer and Eisen, 1977). Douvan and Adelson (1966), for example, found that with increasing age, adolescents (e.g., 14–18 years) produced more specific description of their futures. Monks (1968) observed significant age differences in a sample of Dutch adolescents 14–21 years old: Older adolescents showed greater complexity and differentiation of temporal perspective than did the younger ones. Similar patterns have been observed in the vocational development literature as well (e.g., Ginzberg, 1972; Havinghurst, 1964; Lehman and Witty, 1931; Lessing, 1968).

The pattern and direction of observed sex differences in future-time perspective, however, is more variable. Several authors report greater differentiation and extension for males than for females (Cottle and Klineberg, 1974; Cottle and Pleck, 1969; Moerk and Becker, 1971; Slater, 1970), while others report greater extension and realism (i.e., planfulness) for females than for males (e.g., Moerk, 1974; Verstraaten, 1980), and still others report no significant sex differences in any dimension of temporal perspective (Gorman and Wessman, 1977).

Taken together, these findings suggest that adolescents, as compared to younger children: (1) demonstrate greater depth and extension of temporal perspective (Kastenbaum, 1961, 1966; Verstraaten, 1980, Wallace, 1956); (2) project a more complex, differentiated set of future expectations (Bortner & Hultsch, 1972; Douvan and Adelson, 1966; Moerk and Becker, 1971) and; (3) describe future aspirations with greater planfulness, organization, and realism (Lens and Gailly, 1980; Moerk, 1974; Verstraaten, 1980). And each of these aspects of adolescent temporal perspective appears to be mutable, although not predictably so, by exogenous (SES, academic performance) as well as endogenous (sex, ethnicity, psychopathology) factors (Barndt and Johnson, 1955; Cottle, 1974; Cottle and Howard, 1969; Davids, 1969; Douvan and Adelson, 1966; Farnham-Diggory, 1966; Khoury and Thurmond, 1978; LeShan, 1952; Lessing, 1968; Mehta *et al.*, 1972; Shannon, 1975).

Repeated observation of these age-related shifts has generated much theoretical speculation concerning the genesis of adolescent time perspective (Erikson, 1957, 1964; Freud, 1958; Hartmann, 1958; Inhelder and Piaget, 1958). Erikson (1964, 1968), for example, suggested that such changes are

an integral part of the process of identity formation. That is, the ego identity crisis of adolescence fosters both a concern for, and a reexamination of, oneself and one's present circumstance in terms of their implications for future roles. It is the need for continuity of ego identity that both fuels and directs the extension of temporal perspective. Thus, Erikson writes, "the young person, in order to experience wholeness, must feel a progressive continuity between that which he has come to be during the long years of childhood and that which he promises to become in the anticipated future" (1964, p. 91). The need to maintain self-continuity, particularly during the turbulence of adolescence, has received increasing emphasis in the psychoanalytic literature (e.g., Freud, 1953; Gedo and Goldberg, 1973; Winnicott, 1958), reaching its zenith in the self theories of Winnicott (1965) and Kohut (1971, 1977). In this instance, self-continuity, as reflected by shifts in adolescent temporal perspective, is seen as normative avoidance of psychogenic fragmentation and pathology (Freud, 1958; Freud, 1953; Kohut, 1977; Winnicott, 1965).

In the main, however, researchers have attributed shifts in adolescent temporal perspective to the emergence of new, variously defined, cognitive abilities (e.g., Hartmann, 1958; Piaget, 1969; Riegal, 1977). Perhaps the most widely cited explanation in this regard is Piaget's (Inhelder and Piaget, 1958; Piaget, 1968, 1969, 1972) assertion that the observed shifts in adolescent temporal perspective are due largely to the emergence of formal-operations reasoning (e.g., Cottle, 1977; Cottle and Klineberg, 1974; Fraisse, 1963; Klineberg, 1967; Riegal, 1977; Wessman and Gorman, 1977). Despite its apparent acceptance, however, Piaget's assertion lacks a necessary description of the dimensions that characterize the posited interrelation of cognition and temporal perspective. Simply put, we do not know whether older adolescents, in consequence of new cognitive abilities, spontaneously project events to more distant points in the future, or envision a greater number or a different kind of future event than do their younger, implicitly less-sophisticated, counterparts. More importantly, however, there has been little empirical examination of the hypostatized relationship between adolescent future-time perspective and cognition.

The present study was designed to examine differences in the organization and type of future events projected by a cross-sectional sample of middle-class Caucasian adolescents. Two hypotheses guided this investigation. First, following the adolescent time-perspective literature cited above, it was predicted that older youths would project a higher number, a more extended, and a more consistent set of future events than would younger adolescents. Second, following Piaget's (1968, 1969) suggestion, it was predicted that the number, consistency, and extension of future events projected by these adolescents would correlate positively with cognitive level.

METHOD

Sample

Sixty Caucasian adolescents, stratified by grade level and sex, participated in the present study: 10 male and 10 female ninth graders, 10 male and 10 female twelfth graders, and 10 male and 10 female college sophomores. Mean ages for the three groups were 15 years for the ninth graders, 17.1 years for the twelfth graders, and 19.2 years for the college sophomores. Adolescents comprising the two younger groups were randomly selected from the college preparatory curriculum of a public secondary school located in a middle-class suburb. College sophomores were randomly selected from a volunteer pool composed of students then enrolled in an introductory psychology class at the local univeristy. The sample derived predominantly from middle-class homes, as determined by the Dunkin Index (Reiff, 1961) and was slightly above average in self-reported academic performance (i.e., mean GPAs were: 3.3 for the ninth graders, 3.2 for the twelfth graders, and 3.4 for the college sophomores).

Procedure

Each participant was interviewed individually in two 45-minute sessions, conducted over a two-day period at their respective schools. Two examiners, one male and one female, conducted all participant interviews. Subject–examiner dyads were counterbalanced to control for potential sex bias and examiner effects. All interviews were tape recorded and examiners made written notes to obtain fuller descriptions of participant response.

Formal operations reasoning was measured using the Equilibrium on a Balance Beam task developed by Inhelder and Piaget (1958). In this task, students were presented a balance apparatus and a set of weights (i.e., eight 10-gram weights, three 80-weights, five 20-gram weights, and three 50-gram weights). After the interviewer demonstrated use of the balance apparatus, 10 problems, of the form described below, were administered to each student.

> First, I'd like you to balance one weight [80 grams] on that side with two weights [10 grams each] on the other side. Remember, the two weights [or weight sets] are of different amounts; this one [this pair] weighs _____ grams. And, remember that the set of weights [i.e., two weights of 10 grams each] must be placed on the same knob.

Each of these problems required that students coordinate the placement of disparate weights (or weight sets) on a variable dimension (i.e., distance from the fulcrum) by abstracting the proportional relationship between the weights, inverting that proportion, and applying it to the distance dimension to deter-

mine correct placement. As the student worked through each problem, the interviewer asked. "What are you doing now? How did you decide to move the weight [weight set] from knob _____ to _____ as you did?" Interviewers also recorded all weight displacements performed by students on each of the 10 problems in order to obtain a behavioral description of the student's approach to the solution of the task (e.g., trial and error vs systematic displacements). At the conclusion of this task, students were asked, "Is there a general rule for bringing two unequal weights [weight sets] into balance?"

As previous research indicated that the Balance Beam is among the more discriminating of the formal-operations reasoning tasks (e.g., Blasi and Hoeffel, 1974; Keating, 1979; Neimark, 1975; 1982), it was felt that its inclusion would provide a more robust test of the Piagetian hypothesis. Moreover, the Balance Beam is one of the few measures of formal-operations reasoning for which scoring procedures have been developed such that stage and substage transitions can be reliably identified (e.g., Adi and Pulos, 1980; Linn and Pulos, 1980; Linn and Swiney, 1981; Somerville, 1974).

Two tasks were used to measure adolescent future-time perspective: the Density of Future Events (D-1), and the Future Sequence Arrangement tasks (Cottle and Klineberg, 1974; Kastenbaum, 1961, 1966; Lens and Gailly, 1980; Shannon, 1975; Verstraaten, 1980). The Density of Future Events (D-1) is an open-ended interview task in which the student is asked to list all the things that may happen in his/her future. Students were allowed to identify as many future events as they could think of. Additionally, probes were used to encourage students to think as naturally and spontaneously about their future as possible (i.e., "Is that all you wish to say? Can you think of anything else that might happen in your future?"). Students were allowed to alter, delete, or reorganize the future events projected as they choose. No constraints were placed on the events described, their sequence, or relationship to other events. Once a set of future events was obtained, the student was then asked to identify the age at which each event was most likely to occur (e.g., "How old do you think you'll be when you _____ ?").

The Future Sequence Arrangement is a structured parallel-forms task, consisting of two forms. In form A of the task, students were read a list of 12 possible future events and asked to give an age at which each event was most likely to occur (e.g., "How old do you think you'll be when you get married; have children?"). In form B, students were given 12 cards, each card listing one of the events presented in form A. Students were asked to order the cards corresponding to the probable chronological occurrence of the events listed—that is, to order the cards so that the event most likely to occur first was the first card, the event most likely to occur second was the second card, and so on.

Scoring

Scoring of all interview protocols was conducted by two trained undergraduate research assistants, who were blind to the study's hypotheses and neither of whom had participated in the data collection described above. Scorers also were blind to the age and sex of those respondents whose protocols they scored. The procedures followed in the scoring of each task are described below.

Scoring of the Balance Beam task followed the stage descriptions presented in Inhelder and Piaget (1958) and incorporated the substage modifications suggested by Somerville (1974). That is, responses to each of the 10 balance problems were scored at one of four levels of cognition (i.e., concrete operations, substage IIB; transition, substage IIB/IIIA; early formal operations, substage IIIA; and consolidated formal operations, substage IIIB). The modal stage level response across the 10 problems was computed as the score for that task (Flavell, 1972; Wohlwill, 1969). Interrater agreement for scoring of the Equilibrium task was 93% on a subsample of 20 randomly selected protocols.

Three measures, or dimensions, of future-time perspective were obtained from the Density of Future Events (D-1) task: (1) *density,* or the absolute number of future events identified; (2) *spontaneous extension,* or the oldest age given for the occurrence of any event; and (3) *constrained extension,* or the median age for the set of future events identified.

The final measure of future-time perspective was obtained from the two forms (A and B) of the Future Sequence Arrangement task. Separate ranks were assigned to each event, within each form of the task, corresponding to the student's ordering of events within that form. Thus, two sets of ranking were obtained for each student, one for each form of the task. Spearman rank-order correlations then were computed between the two sets of rankings; the resulting coefficient was used as the fourth measure of future time perspective, *consistency.* No interrater agreement or reliability indices were computed for the future-time perspective measures.

RESULTS

In the preliminary examination of these data, a series of 2 (sex) by 3 (grade) factorial ANOVAs was conducted to determine whether significant main or interaction (e.g., Grade × Sex, Grade × Cognitive Level, Sex × Cognitive Level) effects were obtained for the measures of future-time perspective and formal-operations reasoning. No significant interaction effects were found. Although, as indicated by Table I, a positive association between grade level

Table I. Frequency Distribution of Cognitive Substages by Grade Level[a]

Cognitive substages	Ninth	Twelfth	College sophomore
Substage IIB	4	1	2
Substage IIB/IIIA (transition)	7	4	3
Substage IIIA	7	9	6
Substage IIIB	2	4	9

[a] $n = 58$. Extended median test ($\chi^2 = 6.57$, $df = 2$, $p < .05$).

and cognition was obtained ($\chi^2 = 6.57$, $df = 2$, $p < .05$), this association did not manifest as a significant main or interaction effect for any of the future-time perspective measures. The lack of a significant interaction for these variables, however, may be due to the finding that the two youngest groups (i.e., ninth and twelfth grades) did not differ significantly in cognitive level ($\chi^2 = 1.28$, $df = 3$, n.s.).

No significant sex differences were obtained for any of the cognition or future-time perspective variables under consideration. In view of these preliminary findings, and to facilitate discussion, the results obtained are presented separately for each hypothesis below.

Table II presents the mean and median future-time perspective scores, derived from the ANOVAs described above, for each of the three grade-level groups. As can be seen, analysis of the relationship between grade level and future-time perspective obtained significance only for spontaneous extension. Thus, the first hypothesis received only limited support: College students did extend themselves to more distant points in the future; however, they were no more able than younger adolescents to project a greater number, or a more extended or consistent set of future events. Rather, they were unique only in their ability to envision significantly older ages at which single events could occur.

Next we turn to consideration of the Piagetian hypothesis, the analyses for which are presented in Table III. As can be seen, only constrained exten-

Table II. Mean and Median Future-Time Perspective Scores by Grade Level

Future-time perspective	Ninth	Twelfth	College sophomore	p
Mean density score (events)	7.8	6.5	7.3	n.s.
Mean spontaneous extension score (years)	50.70	49.85	57.20	.05
Median constrained extension score (years)	25.25	26.75	29.75	n.s.
Mean consistency score	.76	.80	.83	n.s.

Table III. Pearson Product-Moment Correlations Between Measures of Formal-Operations Reasoning and Future-Time Perspective

	Formal operations reasoning	Spontaneous extension	Constrained extension	Density	Consistency
Formal-operations reasoning	1.00	.13	.28[a]	−.05	−.03
Spontaneous extension		1.00	.33[a]	.31[b]	.04
Constrained extension			1.00	.15	−.03
Density				1.00	−.09
Consistency					1.00

[a] $p < .05$
[b] $p < .01$.

sion correlated significantly with formal-operations reasoning. Although singular, this result is of interest. As constrained extension represents the median age of the set of future events spontaneously identified by the student, the higher this score, the more distal the set of future events envisioned. In other words, the more cognitively advanced adolescents were, the better able they were to project a set of events to more distant points in the future—or perhaps, the better able they were to envision a future life. However, such students were no more able to project a higher number, nor a more consistent set, of future events than did their less-cognitively sophisticated peers. Thus, the Piagetian hypothesis, predicting a significant relationship between formal-operations reasoning and future-time perspective, was obtained only for constrained extension.

It is of interest to note that only three of the four future-time perspective measures significantly intercorrelated (see also Table III). That is, spontaneous extension correlated significantly with both the constrained extension and density measures. However, density and constrained extension were not significantly correlated. This finding suggests that the farther adolescents were able to extend themselves into the future, the farther they also could extend a set of events and the higher the number of events as could envision. This relationship must be qualified, however, by the modesty of the correlations obtained. What these low intercorrelations also may suggest is that the measures employed may be tapping largely independent, hopefully complementary, dimensions of adolescent future time perspective (Rakowski, 1980).

The final analyses of these data were conducted to examine the kinds of future events anticipated by adolescents and whether the types of events described were related to grade or cognitive level. Table IV presents the 10 most frequently identified future events. In all, 25 different events were described by these adolescents.

Table IV. Ten Most Frequently Identified Future Events

Future events	Frequency of nomination
Be successful	42
Marriage	30
Happiness	28
Buy a car	28
Death	24
College	23
Have a family	22
Get a job	16
Begin a career	14
Parent's death	12

For purposes of analysis, four mutually exclusive event categories were derived from the original set. Based on the apparent themes represented by the events described, the four categories were as follows:

1. *Achievements:* Events that represented that attainment of some goal, status, or privilege (e.g., having success in one's career). Thirty-three percent of the events identified fell into this first category.
2. *Relational Events:* Events that focused on some aspect of the adolescent's future interpersonal relationships (e.g., marriage, having a family). Thirty-six percent of the future events described fell within this category.
3. *Experimental Events:* Events that focused on the occurrence of some (new) experience, or change in life-style, external to the adolescent (e.g., travel, move to a new city). Eighteen percent of the future events described fell into this category.
4. *Existential Events:* Events that focused on some change in the adolescent's inner state of being (e.g., contentment, wisdom). Eleven percent of the future events described fell within this last category.

Each event identified was coded as representing one of the four future event categories. Interrater agreement was computed to be 93%. Frequency analyses then were conducted to determine whether the distribution of future-event categories differed by grade or cognitive level. These results are presented in Tables V and VI, respectively.

No significant differences in the distribution of future-event categories were obtained for cognitive level. Contrary to Piaget's suggestion, acquisition of the formal operations failed to differentiate the kinds of futures envisioned by these adolescents. However, as can be seen in Tables VI, significant grade-level differences were obtained. And, as also can be seen, several different patterns gave rise to this result.

Table V. Distribution of Future-Event Categories by Cognitive Level[a] (percent response)

	Cognitive level			
Event categories	Substage IIB	Substage IIB/IIA	Substage IIIA	Substage IIIB
Experiential	16	28	21	14
Relational	44	35	35	36
Achievement	28	29	35	33
Existential	12	8	9	17
Totals	100	100	100	100

[a]Chi-square test for independent groups ($\chi^2 = 6.70$, $df = 9$, n.s.).

First, younger adolescents anticipated the occurrence of experiential events to a significantly greater extent than did the older adolescents. Thirty-two percent of the future events described by ninth graders fell within this category, as opposed to only 19% of the events described by twelfth graders and 14% of those described by college sophomores. Second, younger adolescents also evidenced greater concern for future peer relationships: Almost half the events described by these youngsters fell within the relational-events category, whereas for high-school seniors and college sophomores, this category represented only one-third of the events described. Third, older adolescents showed significantly greater anticipation of internally, as opposed to externally, focused experiences. In contrast, ninth and twelfth graders anticipated considerably fewer internal or self-related changes in the future. Finally, twelfth graders, as opposed to either high-school or college sophomores, showed marked concern for future achievements. Almost one-half of the events described by this group were in some way achievement-oriented, as compared to only one-third of the events described by ninth graders.

In summary, the results obtained in the present study provide only limited support for each of the two hypotheses under consideration. As

Table VI. Distribution of Future-Event Categories by Grade Level[a] (percent response)

	Grade level		
Event categories	Ninth	Twelfth	College sophomore
Experiential	32	19	14
Relational	42	31	36
Achievement	21	45	31
Existential	5	5	19
Totals	100	100	100

[a]Chi-square test for independent groups ($\chi^2 = 23.35$, $df = 6$, $p < .001$).

predicted, older adolescents showed greater extension of future time (i.e., nominating significantly older ages for the occurrence of single events). And more cognitively advanced students proved better able to project a set of events into the distant future. However, neither the older, nor the cognitively advanced, adolescents projected a higher number or a more consistent set of future events than did their respective counterparts. Finally, analysis of the kinds of future events envisioned by these adolescents obtained significance only for grade level. Formal-operations reasoning was not found to significantly differentiate the futures anticipated by these youths.

DISCUSSION

The lack of a significant relationship between formal-operations reasoning and four (i.e., density, spontaneous extension, consistency, future events) of the five future-time perspective measures is a surprising result, particularly as the emergence of formal-operations reasoning is frequently referenced in this literature to account for changes in adolescent time perspective (Cottle and Klineberg, 1974; Fraisse, 1963; Piaget, 1968, 1969; Wessman and Gorman, 1977). To some extent, these findings may be due to the use of only a single measure of formal-operations reasoning. Had multiple or convergent measures been employed, it is theoretically possible that different patterns of association might have been obtained between cognition and temporal perspective. However, it is important to note that although the Balance Beam is one of the most discriminating of the Piagetian cognition measures (e.g., Lovell, 1961; Keating, 1979; Neimark, 1975), 26% of this sample demonstrated operations reasoning (i.e., substage IIIB) on the task administered. Given this consideration, the absence of a positive association between formal-operations reasoning and temporal perspective cannot be easily dismissed as methodological artifact. Rather, these data indicate that whatever contributions made by cognition to temporal perspective are overshadowed by the comparatively greater influence of grade level (Greene, In Press).

It would be precipitate to infer generative properties to the grade (and implicitly age) levels differentiating the three groups examined in this study. Rather, we may, as Haan *et al.* (1982) have suggested, interpret the grade-level differences obtained to represent an index of the experience (e.g., social, educational) that the adolescent has, and continues to accumulate. What may distinguish these groups, then, is not so much the age levels specific to each, but rather differences in social context and the concomitant experience derived therein. We gain some appreciation for this suggestion if we consider some of the experiences and concerns that differentiated the three groups examined in this study.

In the present study, the ninth grade was the first year of high school. Thus, ninth graders experienced changes not only in school location, but also in school structure, class size and composition, and in peer relationships. To a large extent the kinds of events experienced by these students in the present are reflected in the kinds of events that they anticipate in the future This interpretation would account for the greater frequency of externally focused (i.e., experiential) and interpersonally defined (i.e., relational) events anticipated by these students. Similarly, the greater frequency of achievement events identified by twelfth graders may be considered reflective of their specific concerns at that point in time. Many of the seniors, for example, were in the process of selecting colleges that would facilitate later career entry (or so they informed the author). It should be noted that these students also were being encouraged to do so by their teachers and parents. The achievement of early admission to one's first (or second) choice college was seen by this group as a notable one, in that it would allow "cruising through" the remainder of the academic year. By contrast, college sophomores, perhaps having already achieved that end, displayed greater balance in the projection of relational vs achievement and experimental vs existential events. What these differing patterns suggest is that adolescents may expand and construct their perspective of the future not so much in consequence of cognitive factors, but as a result of the social and educational experiences that they have accumulated.

In this manner, adolescent temporal perspective bears a striking resemblance to personal narrative, as described by Ricoeur (1977). That is, the apperception of self in different time periods (i.e., past, present, future) can be seen as a story. And, like all stories, personal narrative consists of three consensually defined elements: a beginning, a middle, and an ending (Ricoeur, 1977; Riegal, 1973). That is, the self in early or past life can be seen as the beginning of the narrative and the self in the future, the end of the narrative. To maintain congruency of self, then, the various frames of the narrative (i.e., past, present, and future) also must be congruent. Cohler (1980, 1982) uses this construct to provide a framework within which adult recollections of early experience can be better understood. It is, he suggests, not so much an issue of the accuracy of these recollections, as had been previously assumed, but rather the consanguinity of these memories with present experience and present self-perceptions. Adults, Cohler (1982) argues, reconstruct, albeit unconsciously, memories of past experience so as to achieve this consanguinity. In this manner, the present appears to follow from the past and the personal narrative obtains congruence.

In the present study, it appears that the opposing end of this personal narrative continuum may hold. Adolescents in this study appear to project into the future the kinds of events and experiences that they encounter in

the present. In so doing, they construct a future narrative congruent with present (and accumulated) experience. Thus, for ninth graders, the projected future is as full of changes in the externalities of their lives as is their first year of high school. We may speculate that as the nature or context of present experience changes, so too then will change the future narrative.

In summary, the findings of the present study would suggest that use of a cognitive hypothesis to explain adolescent future-time perspective is limited at best. Rather, a confluence of experiential, contextual, and self-referent factors appear to influence both the extension and composition of the future that adolescents envision.

REFERENCES

Adi, H., and Pulos, S. (1980). Individual differences and formal operational performance of college students. *J. Res. Math. Educ.* 11: 150-156.

Barndt, R. J., and Johnson, D. M. (1955). Time orientation in delinquents. *J. Abnorm. Social Psychol.* 51: 589-592.

Blasi, A., and Hoeffel, E. C. (1974). Adolescence and formal operations. *Hum. Develop.* 17: 344-363.

Bortner, R. W., and Hultsch, D. F. (1972). Personal time perspective in adulthood. *Develop. Psychol.* 7: 98-103.

Butler, R. N. (1968). The life review: An interpretation of reminiscence in the aged. In Neugarten, B. L. (ed.), *Middle Age and Aging,* University of Chicago Press, Chicago, Ill.

Cohler, B. (1980). Adult development psychology and reconstruction in psychoanalysis. In Greenspan, S. I., & Pollack, G. H., (eds.), *The Course of Life: Psychoanalytic Contributions Toward Understanding Personality Development. Vol. 3: Adulthood and the Aging Process,* National Health Study Center, Adelphi, Md.

Cohler, B. (1982). Personal narrative and the life course. In Baltes, P. B., and Brim, O. G., (eds.), *Life-Span Development and Behavior.* New York: Academic Press.

Cottle, T. J. (1974). *Black Children, White Dreams.* Houghton-Mifflin, Boston.

Cottle, T. J. (1976). *Perceiving Time: A Psychological Investigation with Men and Women.* Wiley–Interscience, New York.

Cottle, T. J. (1977). The time of youth. In A. E. Wessman and B. S. Gorman (eds.), *The Personal Experience of Time.* Plenum Press, New York.

Cottle, T. J., and Howard, P. (1969). Temporal extension and time zone bracketing in Indian adolescents. *J. Percept. Motor Skills* 28: 599-612.

Cottle, T. J., and Klineberg, S. (1974). *The Present of Things Future,* Free Press-MacMillian, New York.

Cottle, T. J., and Pleck, J. (1969). Linear estimation of temporal projections. *J. Project. Tech. and Personal. Assess.* 33: 81-93.

Davids, A. (1969). Ego functions in disturbed and normal children: Aspiration, inhibition, time estimation and delayed gratification. *J. Consult. Clin. Psychol.* 33: 61-70.

Douvan, E., & Adelson, J. (1966). *The Adolescent Experience.* New York: Wiley.

Erikson, E. H. (1957). The problem of ego identity. *J. Amer. Psychoanal. Assoc.* 4: 56-121.

Erikson, E. H. (1964). *Insight and Responsibility,* W. W. Norton, New York.

Erikson, E. H. (1968). *Identity, Youth and Crisis.* W. W. Norton, New York.

Eson, M. E., and Greenfield, N. (1962). Lifespan: Its content and temporal dimension. *J. Genet. Psychol.* 100: 113-128.

Farnham-Diggory, S. (1966). Self, future and time: A developmental study of the concepts of psychotic, brain-damaged and normal children. *Monographs of the Society for Research in Child Development* 31: 1-63.

Flavell, J. H. (1972). An analysis of cognitive-development sequences. *Genet. Psychol. Monogr.* 84: 279-350.

Flavell, J. S., and Wohlwill, J. F. (1969). Formal and functional aspects of cognitive development. In Elkind, D., and Flavell, J. H. (eds.), *Studies in Cognitive Development.* Oxford University Press, New York.

Fraisse, P. (1963). *The Psychology of Time,* Harper & Row, New York.

Freud, A. (1958). Adolescence. *Psychoanal. Study Child,* 13: 255-278.

Freud, S. (1953). *Three Essays on the Theory of Sexuality,* Standard Ed., Vol. 7, Hogarth Press, London. (Originally published 1909)

Gedo, J., and Goldberg, A. (1973). *Models of the Mind: A Psychoanalytic Theory,* University of Chicago Press, Chicago, Ill.

Ginzberg, E. (1972). Toward a theory of occupational choice: A restatement. *Vocat. Guid. Q.* 20: 169-176.

Gorman, B. S., and Wessman, A. E. (1977). *The Personal Experience of Time,* Plenum Press, New York.

Greene, A. L. (in press). Formal operations reasoning and aspects of personality development during adolescence. *Adolescence.*

Haan, N., Weiss, R., and Johnson, V. (1982). The role of logic in moral reasoning and development. *Develop. Psychol.* 18: 245-256.

Hartmann, H. (1958). *Ego Psychology and the Problem of Adaptation,* International Universities Press, New York.

Havinghurst, R. J. (1964). Youth in exploration and man emergent. In Borow, H. (ed.), *Man in a World at Work,* Houghton-Mifflin, Boston, Mass.

Inhelder, B., and Piaget, J. (1958). *The Growth of Logical Thinking from Childhood to Adolescence,* Basic Books, New York.

Kastenbaum, R. (1961). The dimensions of future time perspective: An experimental analysis. *J. Gen. Psychol.* 65: 203-218.

Kastenbaum, R. (1966). On the meaning of time in later life. *J. Genet. Psychol.* 10: 9-25.

Keating, D. P. (1979). Adolescent thinking. In Adelson, J. P. (ed.), *Handbook of Adolescence,* Wiley, New York.

Khoury, R. M., and Thurmond, G. T. (1978). Ethnic differences in time perception: A comparison of Anglo and Mexican Americans. *Percept. Motor Skills,* 47: 1183-1188.

Klineberg, S. L. (1967). Changes in outlook on the future between childhood and adolescence. *J. Personal. Soc. Psychol.* 8: 253-257.

Kohut, H. (1971). *The Analysis of the Self,* International Universities Press, New York.

Kohut, H. (1977). *The Restoration of the Self,* International University Press, New York.

Lehman, H. C., and Witty, S. (1931). A study of vocational attitudes in relation to pubescence. *Amer. J. Psychol.* 43: 93-101.

Lens, W., and Gailly, A. (1980). Extension of future time perspective in motivational goals of different age groups. *Hum. Develop.* 32: 1-17.

LeShan, L. L. (1952). Time perspective and social class. *J. Abnorm. Soc. Psychol.* 47: 589-592.

Lessing, E. E. (1968). Demographic, developmental and personality correlates of length of future time perspective (FTP). *J. Personal.* 36: 183-201.

Lessing, E. E. (1972). Extension of personal future time perspective, age and life satisfaction in children and adolescents. *Develop. Psychol.* 6: 457-465.

Lewin, K. (1946). Behavior and development as a function of the total situation. In Carmichael, L. (ed.), *Manual of Child Psychology,* Wiley, New York.

Linn, M. C., and Pulos, S. (1980). Proportional reasoning during adolescence: The balance puzzle (Adolescent Reasoning Project, Report No. 25). Berkeley, CA: University of California, Lawrence Hall of Science.

Linn, M. C., and Swiney, J. F. (1981). Individual differences in formal thought: Role of expectations and aptitudes. *J. Educat. Psychol.* 73: 274-286.

Lovell, K. (1961). A follow-up study of Inhelder and Piaget's "The Growth of Logical Thinking." *Br. J. Psychol.* 52: 143-153.

Mehta, P. S., Rahila, P. K., Sundbery, N. D., and Tyler, L. E. (1972). Future time perspectives of adolescents in India and the United States. *J. Cross Cultural Psychol.* 3: 293-302.

Moerk, E. (1974). Age and epogenic influences on aspirations of minority and majority group children. *J. Counsel. Psychol.* 21: 294-298.

Moerk, E., and Becker, P. (1971). Attitudes of high school students toward future marriage and college education. *Family Coordinator* 20: 67-73.

Monks, R. (1968). Future time perspective in adolescence. *Hum. Develop.* 11: 107-123.

Montemayer, M., and Eisen, M. (1977). The development of self-conceptions from childhood to adolescence. *Develop. Psychol.* 13: 314-319.

Neimark, E. D. (1975). Intellectual development during adolescence. In Horowitz, F. D. (ed.), *Review of Child Development Research* (Vol. 4), University of Chicago Press, Chicago, Ill.

Neimark, E. D. (1982). Adolescent thought; Transition to formal operations. In Wolman, B. (ed.), *Handbook of Developmental Psychology,* Prentice Hall, Englewood Cliffs, N.J.

Neugarten, B. L. (1968). The awareness of middle age. In Neugarten, B. L. (ed.), *Middle Age and Aging,* University of Chicago Press, Chicago, Ill.

Piaget, J. (1968). *Six Psychological Studies,* Vintage Books, New York.

Piaget, J. (1969). The intellectual development of the adolescent. In Caplan, G., and Lebovici, S. (eds.), *Adolescence: Psychosocial Perspectives,* Barre Books, New York.

Piaget, J. (1972). Intellectual evolution from adolescence to adulthood. *Hum. Develop.* 15: 1-12.

Rakowski, W. (1980, November). *The Comparability of Future-Time Perspective Techniques: A Methodological Role.* Paper presented at the 33rd annual meeting of the Gerontological Society, San Diego, California.

Reiff, A. J. (1961). *Occupations and Social Status.* Free Press, New York.

Ricoeur, P. (1977). The question of proof in Freud's psychoanalytic writings. *J. Amer. Psychoanal. Assoc.* 25: 835-872.

Riegal, K. (1977). Toward a dialectical interpretation of time and change. In Gorman, B. S., and Wessman, A. E. (eds.), *The Personal Experience of Time,* Plenum Press, New York.

Shannon, I. (1975). Future time perspective in three cultural groups: A cultural difference or an expectancy interpretation. *Develop. Psychol.* 11: 114-175.

Slater, P. E. (1970). *The Pursuit of Loneliness: American Culture at the Breaking Point,* Beacon Press, Boston, Mass.

Somerville, S. C. (1974). The pendulum problem: Patterns of performance defining developmental stages. *Brit. J. Educat. Psychol.* 44: 266-281.

Verstraaten, D. (1980). Levels of realism in adolescent future time perspective. *Hum. Develop.* 23: 177-191.

Wallace, H. (1956). Future time perspective in schizophrenia. *J. Abnorm. Soc. Psychol.* 52: 240-245.

Wessman, A. E., and Gorman, B. S. (1977). The emergence of human awareness and concepts of time. In Wessman, A. E., and Gorman, B. S. (eds.), *The Personal Experience of Time,* Plenum Press, New York.

Winnicott, P. W. (1958). *Through Pediatrics to Psychoanalysis,* Basic Books, New York.

Winnicott, P. W. (1965). *The Maturational Processes and the Facilitating Environment,* International Universities Press, New York.