four-dimensional self-concept was found to be structurally invariant over three periods of observation, and both normative and subjectively stable. There were, at the same time, significant shifts in level, indicating some deterioration of the self-image during college and improvement during the following 10 years. While investigations have tended to emphasize the normative stability of personality, this research suggests that relatively high normative stability is compatible with ordered change, and such level change is perhaps equally relevant to an understanding of the developmental process.

In an attempt to investigate the relationship between self-concept and life events, the life experiences of persons whose self-competence had changed are compared with the experiences of persons who remained relatively stable on this dimension after college. In general, the objective and subjective life events that distinguished the groups were found to be predicted by the self-competence dimension measured a decade earlier. But the analysis also showed that the life experiences significantly contributed to self-concept development during the transition to adulthood. The evidence suggests that a truly reciprocal relationship exists between life events and the enduring, yet changing, self-image.

I. Introduction

The extent to which individual attributes remain the same or change through the course of human development is of critical importance in life-span research. The recently published volume *Constancy and Change in Human Development* (Brim & Kagan, 1980) testifies to the centrality of this issue. According to Haan and Day (1974), "The fundamental question for developmental research is the nature of the dialectical interplay between change and preservation of sameness over a lifespan" (p. 11). To Baltes and Nesselroade (1973), "It is the study of intrapersonal change and interindividual differences in intrapersonal change that constitutes the core of developmental methodology." (p. 222).

It was customary in an earlier period to view the experiences of early childhood as crucial determinants of the course of individual development, after which the personality was considered to remain quite stable (see Baltes, Reese, & Lipsitt, 1980, p. 94; Gergen, 1977; Neugarten, 1977). Psychoanalysis, ego psychologists, and learning theorists alike heralded the primacy of earlier over later socialization experiences, and looked for the sources of adult adaptation in the intense parent-child relationships of early life (Lidz, 1968; Luborsky & Schimmel, 1964).

Increasingly, however, this view has been challenged by social scientists espousing "life-span" perspectives. The life-span approach views development as "a life-long process" (Baltes et al., 1980, p. 70) and indicates the potential for change and redirection even in later phases of life (Brim, 1980a, 1980b, 1980c; Brim & Kagan, 1980). In fact, "a general antagonism toward the stability orientation" (Gergen, 1977, p. 141) has been noticed in the life-span literature (Costa & McCrae, 1980b). The "stability model" has been further eroded by the recent claims and experimental findings of psychologists, such as Mischel and Gergen, who emphasize the contingent character and situational determination of attitudes and behavior.

It is extremely difficult to resolve this issue, given that the time and resources necessary to conduct longitudinal studies have limited the accumulation of findings that address the degree of personality consistency through time. Highly notable instances of such long-term research are the Berkeley and Oakland studies (Block, 1971), the Fels study (Kagan & Moss, 1962), the Terman study of the gifted (Oden, 1968), and the Grant study of Harvard men (Vaillant, 1977). However, these studies have tended to focus on such global phenomena as achievement and adjustment through life, and contain a limited set of measures of personality characteristics. As a result, there is an absence of relevant data, collected on the same persons across broad periods of the life course, for many attributes of interest to social scientists.

An interesting case in point is the self-concept. Recent conceptualizations of the self-image have featured its multidimensional character (Brim, 1976; Epstein, 1973; Shaver, 1969, pp. 47-48; Wells & Marwell, 1976). Rosenberg (1979) defines the self-concept as "the totality of the individual's thoughts and feelings with reference to himself as an object" (p. 279). However, little is known about the components of this multidimensional structure at different periods of the life course, and the degree of stability of the several dimensions over time. Most research on the self-image, including studies of its development and change, focuses on only one dimension, that of self-esteem.

But even if appropriate longitudinal data for the self-concept, or for other psychological phenomena, were available, evaluating the degree of stability over the life span—or even between adjacent phases of life—is not as simple as might initially appear. An important complication arises from the fact that stability has no uniform definition. At least four different conceptualizations of stability and change can be identified, each with its own characteristic operational definition. Following this review of the meanings of stability, we assess each conceptualization empirically. Stability in the self-image from late adolescence to early adulthood is examined, using data from a panel of male college graduates. We then investigate the relationship between self-concept stability and life events by comparing the life experiences of persons whose self-concepts have changed with those whose self-images have remained stable over time. Finally, we examine the reciprocal influences of the self-concept and life experiences in an attempt to understand the dynamic interrelationships of person and environment.

1This discussion draws heavily on Kagan's (1980) excellent review of "Perspectives on Continuity."

Gergen, who emphasize the contingent character and situational determination of attitudes and behavior.
II. Conceptualizations of Developmental Stability

A. STRUCTURAL INVARIANCE

The concept of structural invariance is of foremost importance in the conceptualization and analysis of stability. It refers, quite simply, to the degree of continuity in the nature of the phenomenon under investigation. A person's construct may be said to be structurally invariant when it is characterized by the same dimensions, and when there is a persistent pattern of relationships among its component attributes, over time. This issue has probably been considered most extensively with regard to intelligence, which has been found to differentiate from a single, generalized mental ability factor to more specific dimensions in the course of early development (Corballis & Traub, 1970). Invariance is of importance, however, in all realms of life-span development. With respect to the self-image, can the investigator be certain that the structure of the self-concept is uniform—consisting of the same dimension or set of dimensions—throughout life? Paralleling the development of mental ability, it is possible that a relatively simple, early self-image, specified by self-esteem, evolves in later phases of life to become a more complex phenomenon. This would occur as the individual acquires a multifaceted set of social roles and their corresponding identities, and as new self-attributes become salient to personal adaptation.

A similar factor loading configuration, obtained at different ages (either with cross-sectional or longitudinal data), is the generally accepted criterion of structural invariance. Corballis & Traub (1970) and Coan (1966) highlight the constancy of the factor pattern as evidence for structural invariance. Such similarity supports the assumption that phenomenon of interest is unchanging. In contrast, if the components of an earlier, single dimension differentiate in later periods to form two or more distinct dimensions, developmental discontinuity may be said to have occurred. Ennemchich (1968) has further elaborated the factor-based indicators of developmental continuity (e.g., similarity in the amounts of common variance accounted for by each dimension, and similarity in the nature of the interrelations among dimensions over time).

Other authors have used the terms "structural" or "qualitative" change, in distinction from "quantitative" change, in addressing the same issue (Baltes & Nesselroade, 1973, p. 223; Baltes et al., 1980; Gergen, 1977; Schae, 1973). "Structural" and "qualitative" change, as indicated by an alteration in the factor configuration, may signify a new stage of growth and development (Klausner, 1973) or, perhaps, movement in terms of a "developmental function" (McCall, 1977). But regardless of the specific terminology employed, the question of the degree of stability in the phenomena of interest to the developmental scientist is pervasive in the literature (for further discussion, see Baltes & Nesselroade, 1970; Eckensberger, 1973; Fagan, 1973; Livson, 1973; Moss & Susman, 1980; Nesselroade, Schae, & Baltes, 1972). This issue has important methodological implications for the developmental researcher. Some investigators have insisted that establishing structural invariance is a necessary precursor to the investigation of other kinds of stability (e.g., change in level or persistence in the pattern of individual differences). According to Nesselroade (1977), 

B. NORMATIVE STABILITY

The second conceptualization of stability is the one most frequently encountered in the developmental literature (Emmerich, 1968; McCall, 1977). Following Kagan (1980, p. 32) and Moss and Susman (1980), we use the term "normative stability" to refer to the persistence of individual ranks or differences on an attribute of interest. Thus, we might ask: Assuming that the phenomenon has not changed in character, does the ordering of individuals with respect to happiness, neuroticism, or sense of competence persist across age periods or through distinct life phases? Normative stability is usually measured by the correlation between measures of an attribute across time in a group of individuals. Strong positive correlations would indicate that individuals who score high or low at the first
period, in relation to other members of the group, retain the same relative positions in the second.

Social scientists who have investigated normative stability have generally been impressed with the stability shown by their panels from adolescence to adulthood, or between phases of the adult life course (Moss & Sussman, 1980; comprehensively review this research). Whereas this kind of stability is most pronounced in the realms of mental ability and intelligence (Bailes et al., 1980; p. 89; McCrae, Appelbaum, & Hogarty, 1973; Nesselroade et al., 1972), substantial evidence for continuity also arises from studies of personality characteristics (Schaie & Parham, 1976), using instruments as diverse as the California Personality Inventory and Q Sort, administered in the Berkeley studies (Block, 1977; Haan & Day, 1974), the Cattell 16 Personality Factor Test (Siener, George, & Okun, 1979), the Guilford-Zimmerman Temperament Survey (Costa, McCrae, & Arenberg, 1980; Douglas & Arenberg, 1978) and the Minnesota Multiphasic Personality Inventory (Leon, Gillum, Gillum, & Gouze, 1979). The work of Costa and his colleagues (Costa & McCrae, 1977–1978, 1980a, 1980b; Costa, McCrae, & Arenberg, 1980) highlights the stability of extraversion and neuroticism (which approaches the reliability of their instruments), and, to a lesser extent, openness to new experience. Their (Costa & McCrae, 1980b) 10-year stability correlations for three adult age groups, ranging from .58 to .69 on a scale of neuroticism and .70 to .84 on one of extraversion, provide persuasive evidence for the continuity of personality. Normative continuity across life phases has also been shown in vocational (Campbell, 1966; Hogan, DeSoto, & Solano, 1977) and other (Capel, 1967) attitudes; indicators of maladjustment and delinquency (Magnusson, Dumer, & Zetterblom, 1975); and life satisfaction (Sears, 1977).

The normative stability of the self-image has also been of scholarly interest, though relatively few long-term longitudinal studies have attempted to address this issue (Lowenthal, 1977). However, Bachman, O'Malley, and Johnston (1978), Haan and Day (1974), and Kelly (1955), whose investigations taken together span the period from adolescence through adulthood, all interpret their data as demonstrating a high degree of constancy in self-conception over time.

Still, the growing body of longitudinal findings does not fully resolve the issue of normative stability versus change, even when data have been collected over long periods. Differences in interpretation arise from the fact that there is no agreed-upon baseline, or accepted standard, by which stability can be defined. Whether stability coefficients are “high” or “low” seems to depend, to a large extent, on the judgment of the investigator. If a researcher expects to find considerable change over a period of time, as when the panel being studied has experienced important role transitions or other life events, or when there is high unreliability of instruments, moderate correlations may be viewed as quite large. Still, it must be remembered that even when correlation coefficients are as high as 7, half the variance is unexplained. Correlations of 5, more typical in re-

search of this kind, leave 75% of the variance unaccounted for. Though high unexplained variance is often attributable to measurement error, it may also indicate a potential for change and responsiveness to external influence. The fact that there is only moderate correlational stability may therefore indicate support for the claims of the life-span developmental theorists, who emphasize the potential for personality redirection throughout life.

C. LEVEL STABILITY

“Level” (Nesselroade et al., 1972) or “ordered” (McCrae et al., 1981) stability refers to persistence in the magnitude or quantity of a phenomenon over time. This concept has also been called “quantitative” or “structural” (Bailes & Nesselroade, 1970, 1973). According to Kagan (1980), it is “the persistence of a psychological quality as reflected in minimal rate of change in that quality over time” (p. 31). Very simply, level stability may be indicated by the invariance of group means on successive occasions, as when there is no change in average height in a group of adults. Similarly, level stability may be assessed at the individual level: Have an individual’s test scores increased or decreased over time? McCrae et al. (1973) have demonstrated in their study of intellectual ability that large group shifts, as well as changes in individual test scores over time, are quite compatible with extremely high normative (or correlational) stability.

Like normative stability, the examination of level stability presumes structural invariance: It would be difficult to compare the magnitude of a unidimensional phenomenon at one time to that one that is multidimensional at a second time. Similar complications in assessing level change arise when an underlying phenomenon is characterized by different sets of observed features across time.

Using this criterion, there is some evidence that personality strengths increase from youth to middle age (Brim, 1976, p. 247; Coan, 1972, p. 359; Gynther, 1979; Haan & Day, 1974; Hess & Bradshaw, 1970). However, once adulthood is reached, there may be considerable level stability. Costa and McCrae (1980b) cite several studies indicating high level stability of neuroticism. They demonstrate with their own data that there is stability of means on the 16 Personality Factor Test over a 10-year period for adult men in three age groups (Costa & McCrae, 1978; see also Schaie & Parham, 1976).

A related consideration is the degree of variance change over time, which could be indicative of socialization pressures or the relative pliability of a trait at different age periods (Huston-Stein & Bailes, 1976, p. 176; McCrae, 1977).

D. IPSATIVE STABILITY

Investigations of ipsative stability appear to be the least frequent in the developmental literature. Emmerich (1968) defines the ipsative criterion in terms of
“intraindividual consistencies and change in the organization of attributes over time” (p. 671). The focus is therefore upon stability or change in the ordering of attributes, or the relative strength of behavioral dispositions, within a person over time, not between individuals (see also Loofbourow, 1973). Thus, whereas structural invariance and normative stability presume that analyses are undertaken across individuals, and level stability may be assessed with respect to the group or the individual, the concept of ipsative stability is specific to intraindividual comparisons across time.

The concept of ipsative stability or change therefore assumes a complex, multivariate structuring of the phenomena of interest: Moss and Susman (1980) note that “stability . . . can be studied ipsatively by evaluating whether different personality characteristics retain the same hierarchical position or salience within the individual over time” (p. 535). Ipsative stability may thus be examined in terms of the relative importance of different attributes, or their dominance within the personality, in successive periods. It is generally assessed by computing a rank order correlation coefficient of attributes at two times for each individual respondent. Using a Q-sort measure of personality, Block (1971) found relatively large within-subject correlations between junior high school, junior high school, and junior high school, smaller ones from junior high to adulthood (see Moss & Susman, 1980, pp. 568-574). At the same time, there was great variation in intraindividual consistency across the subjects.

The concept of ipsative stability is highly relevant to studies of the self-concept. In investigating the self-image, it may be discovered that for a given individual, intelligence is always more pertinent, more salient to the self, than perceptions of athletic abilities. In this event, one would expect that self-attitudes regarding intellectual abilities would have a greater relative impact on overall self-perceptions, or on self-esteem (Rosenberg, 1979). And even if this relative ordering of self-attitudes persists, both cognitions could change substantially in absolute level between successive developmental periods.

It is our intention to empirically investigate each of these four conceptualizations of stability, with reference to the self-image.

III. Data Source

The data were obtained from 1966-1967 male graduates of the University of Michigan. Upon entry to the university in 1962 and 1963, the men joined an extensive research project on the impacts of college life, which lasted throughout their college careers. Since the initiators of that study, Theodore Newcomb and Gerald Gurin, were interested in the development of friendship patterns, three-quarters of the 650 freshmen chosen for the original study resided in the same dormitories; the others were chosen randomly. Four years later, 150 additional seniors were randomly chosen to compensate for freshman sample attrition (see Gurin, 1971, for a complete description of the study design). Thus, while the initial selection of students from the total student body was not entirely random, the college panel was not chosen in a manner that would be selective on the basis of differences in the self-concept. The data from the earlier study that are analyzed here were obtained during freshmen orientation week, prior to the beginning of classes, and during the senior year, close to the time of college graduation.

In 1976, 10 years following college graduation, the seniors who participated in the study were sent a mail-back questionnaire. It assessed the psychological attributes measured earlier, including the self-concept. The questionnaire also included measures that might be considered indicative of significant life events, such as postgraduate educational and work histories, marriage, marital disruption, and occupational experiences.

In 1976, 610 members of this panel were successfully located, or 88% of the 694 men from whom data had been obtained in the senior year. Eighty-four percent of those who were found returned the questionnaire (N = 512). To assess the degree of sampling bias, the 1976 respondents were compared with the nonrespondents, using the senior year data. The two groups were almost identical in family background, college grade point average, and senior year career choice. It is still possible that persons who could not be located in 1976, or who refused to return the questionnaire, experienced more change in their lives and personalities than did the respondents. Though this possibility cannot be investigated, the fact that fully 74% of the senior respondents were retrieved would seem to reduce the severity of this problem.

Although data on 512 of the graduates were obtained in 1976, it was found that only 442 of these men were included in the freshman panel. Additional cases were lost due to the failure of 74 respondents to complete the entire set of 29 self-concept items at each of the three periods. The analyses presented in this article include only the 368 men for whom complete data on the self-concept are available at all three time periods.

This panel is quite advantaged, both with respect to their social origins and their destinations. In family background and educational achievement, it is very similar to persons of the same cohort who attended other highly selective colleges and universities (see King, 1973, p. 11; Korn, 1968, p. 217; Mortimer & Lorence, 1981). By the time of the 1976 survey, a decade following college graduation, more than half the panel had obtained the highest academic and professional degrees (including Ph.D., medical, law, dental, and divinity) and an additional fourth had received master's degrees. The occupations of the graduates are concentrated at the higher professional and managerial levels. Thus, as indicated
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by their family backgrounds and their early adult educational, occupational, and income attainments, the panel may be considered a fortunate group (the occupational and income distributions are given in Mortimer & Lorence, 1979b).

The distinctive character of this group must be kept in mind in interpreting the findings of this study. The panel has, in the aggregate, experienced a quite favorable life course. This pattern of life events would be expected to engender and continually reinforce a positive self-image. Though the characteristics of this panel probably restrict the variance in both the self-concept and in life experiences, the patterns indicated here will hopefully provide insight into basic patterns of self-concept development.

IV. The Self-Concept Dimensions

To measure the self-concept, we used a semantic differential scale (Osgood, Suk, & Tannenbaum, 1957) composed of 29 bipolar characteristics. The respondents were requested to rate "Myself as a Person." While self-appraisals certainly vary, depending on specific roles, tasks, and the situational context, it is probable that this stimulus would evoke the more general, global self-evaluations. Others have attempted to gather situational or role-specific self-conceptions; see Wells & Marwell, 1976, p. 91.) But even global self-ratings will depend on idiosyncratic subjective processes. That is, one person may consider himself happy because he is happy with his marriage; another, job satisfaction may be weighted more heavily in arriving at this evaluation. However, we are more interested in the character of the resulting evaluations, their stability over long periods of time, and the life events which generally affect them, rather than these idiosyncratic differences.

An initial exploratory factor analysis of the 1976 data indicated four factors: we called these well-being, sociability, competence, and unconventionality. Each signifies a specific aspect of the self-image; none appears to correspond to an overarching, evaluative dimension, or to self-esteem.

The first dimension, well-being, expresses the perception of self as happy (vs unhappy), relaxed (vs tense), and confident (vs anxious). The second dimension taps the individual's evaluation of his interpersonal qualities. High scorers view themselves as social (vs solitary), interested in others (vs self), open (vs closed)

and warm (vs cold). The third construct, competence, indicates the assessment of self as active (vs inactive), strong (vs weak), competent (vs incompetent) and successful (vs unsuccessful). This component seems to capture elements of Osgood et al.'s (1957) "activity" and "potency" dimensions. Franks and Marolla (1976) have identified a very similar competence dimension in their factor analysis of a semantic differential scale (see also Monge, 1973). The fourth dimension, unconventionality, signifies the perception of self as impulsive (vs deliberate), unconventional (vs conventional), and a dreamer (vs practical).

Costa and his colleagues (see, for example, Costa & McCrae, 1980) have delineated three psychological dimensions which they view as central to personality structure, and which may be considered parallel to three of our four self-concept factors. Our well-being construct appears analogous to their "neuroticism"; the sociability factor may reasonably be considered the counterpart of their "extraversion." Though the parallel is somewhat less clear, our "unconventionality" dimension seems to resemble their "openness to new experience."

A previous analysis of the semantic differential data (Mortimer & Lorence, 1981) indicated a relatively high degree of normative stability of the four self-concept dimensions over time, and included a causal model of the development of well-being. The first task of the present analysis is to empirically examine, using these longitudinal data, each of the four types of stability that were described earlier. Later in this article, we examine the relationship of change in one of these dimensions—self-competence—to both objective life events and subjective reactions to life experiences.

V. Four Assessments of Self-Concept Stability

A. STRUCTURAL INVARIANCE

To evaluate the structural invariance of the self-concept, as indicated by the semantic differential measures over the three time periods (freshman and senior years in college, and 10 years after graduation), we used the confirmatory factor analysis technique developed by Joreskog and his colleagues (Joreskog, 1970, 1973; Joreskog & Sorbom, 1977; Joreskog & von Thillo, 1972). This procedure enables explicit tests of the structural invariance hypothesis, which states that the dimensional structures and factor loadings are equivalent for the three periods of observation. It also allows assessment of the interrelations of the self-concept dimensions themselves. Comparing their relations with one another.

The reader who is unfamiliar with this analytic technique is referred to Long (1976) or Manyuma and McGarvey (1980). Those seeking a more detailed account of the advantages afforded by the present methods should consult Joreskog and Sorbom (1979a).
at the three periods of observation, permits us to ascertain whether these relationships, likewise, are persistent.

Using this maximum likelihood technique, the relationships between measured indicators (the observed variables) and unobserved or “latent” constructs (the factors or dimensions) are estimated, as are the relationships among the latent constructs. This procedure has several advantages over conventional factor analytic and regression techniques. Foremost among these is the capacity to incorporate in the model both random and systematic measurement errors. Accurately estimating stability and change with panel data necessitates the separation of “real” change (i.e., change in the dimensions of interest) from change attributable to error of measurement. Failure to take measurement error into account biases, and generally weakens, the parameter estimates. In confirmatory factor analysis, indicator variance that is unrelated to the latent construct—whether representing errors of measurement or unique variance—is considered to be error. This error variance may be correlated, both within and between constructs.

Further advantages of the confirmatory factor analysis technique include an overall measure of goodness of fit (χ² divided by the degrees of freedom), enabling an evaluation of how well a given model represents the pattern of relationships that are present in the input data matrix. Chi-square values which are large relative to the degrees of freedom indicate a poor fit, while values which approach the degrees of freedom demonstrate a good fit of model to data. This measure likewise enables a systematic comparison of alternative models. By observing their differences in “fit” to the data, we can assess their relative merit (i.e., which model is best confirmed by the structure in the input data). Recent research that applies this technique to longitudinal data (Joreskog & Sorbom, 1977; Kohn & Schooler, 1978; Maruyama & Miller, 1979; Wheaton, Alwin, & Summers, 1977), including previous analyses of this data set (Mortimer & Lorenz, 1981), attests to the power and utility of the method.

The analyses were performed using the computer program LISREL IV (International Educational Services, 1972). In each analysis, the input to the program was a variance-covariance matrix. As noted earlier, excluded from our sample were all persons who failed to answer any of the semantic differential items at any period.

According to our earlier discussion, structural invariance would exist to the extent that (a) the observed variables have the same patterns of relationships to the latent constructs, and (b) the same relationships exist among the latent constructs themselves over the 14-year time span of the study. Our investigation of structural invariance consists of three stages. In the first stage, we examine whether the same factor structure, signifying the presence of the same self-concept dimensions, provides an acceptable fit to the data at each time period, considered separately. In the second stage, we assess the invariance of factor loadings over time—that is, whether the same semantic differential items have the identical relations to the constructs across the different times of measurement. We do this to ascertain whether the factors can reasonably be assumed to be defined by the same loadings of their constituent indicators at each period of observation. Finally, in the third stage, we examine the similarity of the covariances among the four self-concept dimensions at each time.

In the first stage, the same factor model was applied to the data at each of the three periods. Evidence for a constant dimensional structure would be obtained if the four latent constructs manifested the hypothesized relationships to the identified scale items at all three time periods. Within each time, the four self-concept dimensions, identified in the previous exploratory factor analysis of the 1976 data, were defined in terms of the covariation of their observed indicators (i.e., variables previously found to have high loadings on the factors). Estimated parameters included the factor loadings (lambdas) expressing the relationships between the four constructs and their indicators (which, when standardized and squared, can provide estimates of the “true score” variance of the indicator), the error terms of the indicators, the variances of the constructs, and all covariances among constructs. (In these initial analyses, all correlated error terms, both between and within constructs, were fixed at zero.)

The three models confirmed the hypothesized dimensional structure, as all estimated lambda coefficients were found to be statistically significant at each time and of substantial size. They also provided a reasonable fit to the data at each period. The χ² values, each with 71 degrees of freedom, were 307.56, 368.25, and 261.83, indicating “fit ratios” of 4.33 in the freshman year, 5.19 in the senior year, and 3.69 a decade beyond college graduation. These analyses, performed separately at each time, provided initial evidence that the dimensional structure of the self-concept remains substantially the same across the three periods of observation.

In the second stage, we explicitly tested the invariance of the relations of constructs to indicators over time. Large shifts in these relationships would indicate that the constructs themselves shift in meaning. Including all 12 constructs in a single analysis (4 factors and 3 periods), we compared the fit of two models. In the first model, specifying equality of factor loadings, the estimated
values of corresponding lambda coefficients were constrained to be equal (i.e., the first indicator of the first construct at times 1, 2, and 3; the second indicator of the first construct at times 1, 2, and 3; and similarly, for all constructs and indicators; see Fig. 1). In the second model, all lambda coefficients were allowed to be freely estimated, thus permitting divergent loadings. Examining the difference in fit of these two model specifications enables assessment of the assumption that the relations of constructs to indicators (i.e., the factor loadings) are equal across the three time periods. That is, if it is assumed that this strict criterion of structural invariance applies, are there important violations of the patterning of relationships in the data (Joreskog & Sorbom, 1979b)?

When the same measures are repeated in multiple waves of a study, errors of the same indicators may be expected to covary as a result of their unique variance (their shared variance that is unrelated to the construct) or measurement effects (position in the instrument, memory, etc.). Therefore, an important feature of both of these models, estimated over time, is the inclusion of correlated error terms of the same items between contiguous periods. Again, as in the first-stage analysis, within periods, we set no constraints on the relationships among the constructs; the variances of all constructs were also freely estimated.

It is especially important to note that both models (with or without the equality constraints) provided a very good fit to the data. The measure of fit of the first model, with corresponding lambdas constrained to be equal, was 2.24 ($\chi^2$ divided by the degrees of freedom: 1670.68/745); the second, with all specified relations between constructs and indicators freely estimated, was 2.21 (1602.59/725). The difference in $\chi^2$ values, 68.09, with 20 degrees of freedom (the difference in degrees of freedom between the two models) is statistically significant. Therefore, we cannot, strictly speaking, accept the null hypothesis of no difference between models. However, the absolute difference between the two measures of fit is an exceedingly small .03. There is thus very little difference in fit between the first model, which constrained corresponding factor loadings to be equivalent across time, and the second, which permitted them to vary. Furthermore, examination of the differences in lambdas of the constrained and freely estimated models revealed quite small and unsystematic differences.

Given the slight discrepancies between the two models, and because the constrained model represented a very good fit to the data, we believe there is substantial evidence for structural invariance. Moreover, defining the constructs to be the same across time, as operationalized by this rather strict standard, permits the assessment of normative and level stability without any interpretive complications that might be introduced by shifting measurement parameters (that is, if the relationships between constructs and indicators were to change substantially across time, questions could be raised as to whether the meaning of the self-concept dimensions changes.) Thus, our decision to accept the model including the equality constraints is grounded in these more general observations and
concerns. Alwin and Jackson (1979), in their discussion of tests of invariance of measurement models, have noted:

The acceptance of any of these models cannot be based on statistical grounds alone. Moreover, the use of data from samples of large size will almost guarantee the rejection of models that otherwise provide a reasonable representation of the data. While statistical criteria provide one basis for making an interpretation of the data, the ultimate criteria for choosing a model depend on substantive considerations and the objectives of the research. (p. 103).

Because of the complexity of the final model, it cannot be represented in a single-page figure, and is not shown. Figure 1, however, shows the measurement parameters that were estimated. Table 1 presents the correlations among all constructs and their standard deviations.

Structural invariance has now been demonstrated in two senses: In the first stage of the analysis, the same factor structure was found to adequately represent the data at each time period; in the second phase, the designation of equality constraints, specifying the relations of constructs to indicators to be identical across time, provided a highly adequate fit to the data. We now turn to the third stage of this investigation. The correlations presented in Table 1 suggest yet another indication of structural invariance—stability over time in the associations of the self-concept dimensions (Emmerich, 1968; Neugarten, 1977, p. 637).

It is evident that the constructs are quite similarly related to one another at each period, indicating similarity in the structure of the self-image in the freshman year, in the senior year, and a decade beyond college graduation. The relationship between sociability and well-being is .65 at time 1 , .57 at time 2 , and .52 at time 3 . The correlations between competence and well-being vary only slightly across the three periods: .82, .80, and .71. Similarly, unconventionality showed a persistently strong negative association with well-being and competence at each time (see Table 1). Clearly, the structure of the self-concept, as indicated by the relatively invariant pattern of these intercorrelations among the factors at each time, appears to be highly stable.

Only one pair of factors shows a clearly divergent pattern of relationship over these three time periods. The negative relationship between unconventionality and sociability systematically declines from the earlier to the later periods: from -.40 in the freshman year to -.20 in the senior year to -.05 10 years following graduation. Moreover, the positive correlation between sociability and competence of .62 in the freshman year falls to .49 at the senior year, but remains substantially the same (.46) 10 years following graduation.

### Table 1. Correlations

<table>
<thead>
<tr>
<th></th>
<th>Freshman</th>
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<th>Freshman</th>
<th>Freshman</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>well-being</td>
<td>sociability</td>
<td>competence</td>
<td>unconventionality</td>
<td>well-being</td>
</tr>
<tr>
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<td>1.00</td>
<td>.654</td>
<td>.824</td>
<td>-.464</td>
<td>.628</td>
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<td>.619</td>
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<td>.376</td>
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<tr>
<td>Sociability</td>
<td></td>
<td></td>
<td>1.00</td>
<td>.432</td>
<td>.422</td>
</tr>
<tr>
<td>Competence</td>
<td></td>
<td></td>
<td></td>
<td>-.297</td>
<td>-.641</td>
</tr>
<tr>
<td>Unconventionality</td>
<td></td>
<td></td>
<td></td>
<td>.100</td>
<td>-.334</td>
</tr>
<tr>
<td>Senior</td>
<td>-.199</td>
<td>-.484</td>
<td>-.373</td>
<td>.600</td>
<td>.667</td>
</tr>
<tr>
<td>Well-being</td>
<td>.558</td>
<td>.558</td>
<td>.515</td>
<td>-.199</td>
<td>-.199</td>
</tr>
<tr>
<td>Sociability</td>
<td></td>
<td>.558</td>
<td>.515</td>
<td>.484</td>
<td>.558</td>
</tr>
<tr>
<td>Competence</td>
<td></td>
<td></td>
<td>.319</td>
<td>.100</td>
<td>.319</td>
</tr>
<tr>
<td>Unconventionality</td>
<td></td>
<td></td>
<td></td>
<td>-.213</td>
<td>-.213</td>
</tr>
<tr>
<td>1976</td>
<td>.949</td>
<td>.949</td>
<td>.949</td>
<td>.949</td>
<td>.949</td>
</tr>
<tr>
<td>Well-being</td>
<td>.505</td>
<td>.505</td>
<td>.505</td>
<td>.505</td>
<td>.505</td>
</tr>
<tr>
<td>Sociability</td>
<td>.906</td>
<td>.906</td>
<td>.906</td>
<td>.906</td>
<td>.906</td>
</tr>
<tr>
<td>Competence</td>
<td>.462</td>
<td>.462</td>
<td>.462</td>
<td>.462</td>
<td>.462</td>
</tr>
<tr>
<td>Unconventionality</td>
<td></td>
<td></td>
<td></td>
<td>.570</td>
<td>.570</td>
</tr>
</tbody>
</table>

*Stabilities over the 4 college years and the 10 years since graduation are italicized.
To enable a systematic assessment of the equality of relationships among constructs at the three times, we used LISREL’s multiple population comparison technique (Joreskog & Sorbom, 1979a, Chap. 7; Werts, Rock, Linn, & Joreskog, 1976). While correlations are more readily interpretable, examining the covariances among constructs across time is more appropriate than assessing the correlations, since the latter would reflect shifting construct variances. Three variance-covariance matrices of constructs, corresponding to each time period, constituted the input to the program. These matrices were derived from our second-stage analysis of structural invariance, described above (in which all corresponding lambda coefficients were constrained to be equal). Paralleling the logic of this previous analysis, we estimated two models and compared their fit to the data. In the first, all covariances between corresponding self-concept constructs were constrained to be equal at the three times. For example, the covariances between well-being and competence were constrained to be equivalent in the freshman year, the senior year, and 10 years beyond graduation. Similar equality constraints were applied to all covariances of the same constructs at each time. (Only the variances of the constructs were freely estimated.) In the second model, we allowed the covariances of unconventionality and sociability to be freely estimated at each time. Comparing these two model specifications allows a test of whether allowing the relationship between these two constructs to vary across time provides a statistically significant improvement in fit.

The results of this analysis are presented in Table II. They show that the second model is a significantly better representation of the pattern of input covariances than the first. In the initial, constrained model, the \( \chi^2 \) value (62.80) over the degrees of freedom (12) was 5.23. The corresponding ratio for the second model was 4.56 (45.60/10). The difference in these \( \chi^2 \) values (17.20) with two degrees of freedom* is statistically significant.

Our examination of the correlations of constructs in Table I also suggested that competence and sociability are more highly related in the freshman year than in the latter two periods. Further improvement in the fit of model to data was obtained by freely estimating one additional parameter: the covariance of competence and sociability in the freshman year. (The covariances between the two constructs were again constrained to be equal in the senior year and in 1976.) The \( \chi^2 \) value (25.26) divided by the degrees of freedom (9) was 2.81. This final model thus offers a fairly good fit to the data. It also represents a significant improvement in fit (\( p < .001 \)) over the previous model.

Following McCall (1977, p. 337), who has suggested that the pattern of correlated factors may indicate causal hypotheses, we might speculate on the meaning of the steadily declining association between unconventionality and sociability. It is plausible to assume that there is more social pressure toward conformity during the college years, when popularity within the confines of the college community depends on adherence to the norms of dominant student subcultures. In contrast, in adulthood, the individual may choose friends from diverse social groups—conventional and not. If this reasoning is correct, sociability would be expected to become increasingly independent of personal conventionality. However, these changing relationships could also be indicative of period effects (Glenn, 1980), since the society has experienced increasing tolerance of diversity in lifestyles over the period from the mid-1960s to the mid-1970s. Still, it must be emphasized that in spite of this interesting exception and the decline in the association of competence and sociability after the freshman year, the more general pattern in the interrelationships of the self-concept dimensions is one of invariance for all periods of observation.

Given this pattern of findings, we can assert rather confidently that there is structural invariance in the self-concept across time, as indicated by three operational criteria: (a) the same factor structure has been found to provide a reasonable fit to the data at each period; (b) a model with corresponding factor loadings for each construct constrained to be equal over time provides an excellent fit to the data; and (c) the covariances among the self-concept dimensions, with very limited exceptions, have been found to be equivalent at each time. Given this extensive investigation, it must be concluded that the self-concept, as gauged by the semantic differential instrument, is structurally invariant from late adolescence through early adulthood. We now turn to the second conceptualization of stability, that is, to the normative criterion.

<table>
<thead>
<tr>
<th>Model description</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>( \chi^2/df )</th>
<th>( \chi^2 ) difference</th>
<th>df difference</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All covariances between corresponding constructs constrained to be equal</td>
<td>62.7981</td>
<td>12</td>
<td>5.23</td>
<td>45.6047</td>
<td>10</td>
<td>4.56</td>
</tr>
<tr>
<td>2. Covariance of Sociability and Unconventionality freely estimated for each time</td>
<td>25.2583</td>
<td>9</td>
<td>2.81</td>
<td>20.3464</td>
<td>1</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Two degrees of freedom are lost because in estimating the first equality constrained model, one estimate is made for three covariances (that is, the covariance of sociability and unconventionality at three times); in the second model, three estimates are made, one corresponding to each time.
B. NORMATIVE STABILITY

The degree of normative stability is assessed simply by observing the correlations of the same constructs over time. Stabilities over the 4 years in college and the 10 years since graduation are italicized in Table 1. (Stabilities over the entire 14-year time span can also be observed.) It is evident from these correlations that the relative ordering of individual scores over time has been preserved. Over the first 4-year college period, the correlations of the same constructs fall within a rather small range—from .628 for well-being to .81 for competence. Over the 10-year period following college graduation, they range from .515 (again, for well-being) to .632 (for unconventionality).9

The similarity of these correlations, about .5 to .6 in magnitude, to those reported in other studies enhances the credibility of our findings. Our observed stabilities for the 4-year college period are quite similar to the stability reported by Bachman and his colleagues (1978, p. 291) for self-esteem during the comparable period from 1 to 5 years following high school graduation. Their stability estimate for this 4-year period is .69, corrected for unreliability. Kelly's (1955, p. 675) stability estimate of self-ratings over a 20-year period of adulthood is .56, a figure that is also quite comparable to our estimates over the decade following college graduation.

We conclude that there is considerable evidence for stability of the self-concept, as defined by the normative criterion, over the 14-year period under scrutiny. The absolute magnitude of this stability seems to us to be particularly remarkable, given the many role changes and shifts in life experience undergone by this panel during the transition to adulthood.

C. LEVEL STABILITY

Level stability is probably the easiest type of stability to grasp conceptually—it is simply a shift in the overall quantity, strength, or magnitude of a phenomenon.

*These estimates are quite similar to those reported earlier (Mortimer & Lorence, 1981). The greatest discrepancy is for competence, whose stability in the earlier analysis was estimated to be .775 and .792 over the two time periods, respectively. The discrepancies of the estimates can be attributed to differences in model specification. First, in our earlier analysis, each construct was examined separately over the three times; in the present study, all stability coefficients are estimated simultaneously. Second, in the previous analysis, the measurement parameters were freely estimated along with the stability coefficients; here, the measurement parameters are constrained to be equal. This latter constraint would diminish the stability estimates. The estimates reported in the earlier article may represent the upper limits of stability, as derived from the configuration of relationships in the data. The stabilities estimated here, however, may be somewhat more appropriate for the task at hand, since they take into account all relationships among the components of the multidimensional self-concept, and because the constructs themselves have been constrained to be structurally invariant (by specifying the equivalence of corresponding lambda).

Thus, we might ask, Have the members of the panel, on the average, come to view themselves as more or less competent, sociable, or unconventional, or do they perceive themselves as experiencing greater or lesser well-being 10 years after college than they did in their freshman year? As noted earlier, large shifts in level are compatible with the maintenance of individual differences, or high normative stability.

To examine shifts in level, it is necessary to generate measures of each self-concept dimension that express whatever changes in means may have occurred across time. The conventional procedure for generating indices is to sum (sometimes after weighting) relevant item responses for one period of observation. To adjust for differences in item means and variances, item scores can be standardized before summing (i.e., means are set at zero and standard deviation set at 1). As a result, an individual's standardized score on an item indicates his position, in standard deviation units, within the total distribution. When various items have quite different metrics, this procedure permits meaningful summations across variables, and comparisons of subgroups as well as individuals.

While this method is well suited to assessments at single times, it becomes entirely unsatisfactory if the intent is to clarify absolute changes in means across time. If, in this situation, all means were set at zero, across-time comparisons would suggest that no change had occurred, while in fact, a substantial shift of the entire distribution might have taken place. By the same token, it would be impossible to assess changes in variances between observations, likewise of considerable interest to the developmental researcher.

Therefore, we simply summed the component raw scores of the items for each self-concept construct.11 t tests for paired samples were performed to test the differences in means (comparing freshman and senior mean scores and the senior and 1976 means for each self-concept dimension). All but one were statistically significant (p < .05). Figure 2 shows that well-being and competence decline very similarly over time. Figure 2A and B shows that both well-being and competence decline during the years of college, but then rise after college

9We had initially planned to use the COFAMM program (Confirmatory Factor Analysis with Model Modification, distributed by National Education Resources, Inc.), to systematically test the hypothesis that means are equivalent across time, given the constrained factor structure, using a procedure analogous to our assessment of the invariance of lambda. We discovered after numerous trials, however, that the program was inoperative. We then tried to generate factor score composites to be used in testing level change. Such composites would reflect the relative contribution of each indicator, shorn of measurement error, to the self-concept constructs. But we learned that the procedure used by the LISREL IV program to generate factor score coefficients does not produce correct estimates at this time.

11We also examined ordered shifts in the four self-concept dimensions by comparing summed scores based on item responses standardized across all three periods of observation. Because the trends over time indicated by this analysis were exactly the same as those based on the simpler index, only the latter results are reported here.
graduation. The trends in these self-concept dimensions are consistent with the presumption that late adolescence is a difficult and stressful period, while problems diminish with the individual’s successful adaptation to adult roles (Erikson, 1959). They are also in agreement with previous research findings (Brim, 1976, p. 247; Haan & Day, 1974; Hess & Bradshaw, 1970).

Unconventionality, in Fig. 2D, shows a pattern with the same substantive implication. The perception of self as unconventional, impulsive, and a dreamer—qualities with somewhat negative connotations—declines from the senior year to 1976. The panel members thus view themselves as less unconventional a decade after graduation than they did during college. The small positive shift in unconventionality from the freshman to the senior year, however, is not statistically significant.

We see a quite different pattern for the fourth dimension, sociability (Fig. 2C). The decrease in sociability between the freshman and senior years in college is followed by a continuing, but less pronounced, decline during the decade thereafter. It is plausible that the perception of oneself as social, interested in others, open, and warm would decline in such a group of highly achievement-oriented men. They probably, for the most part, faced stiff competition toward the end of college for places in high-ranking graduate and professional schools, and continuing pressures for high performance as they entered demanding professional and managerial careers. Later these young men may have found themselves on steep and competitive career ladders, facing considerable time pressure, when family demands were also at their peak. Perhaps this role overload, especially severe in this phase of life, lessens time for friendship and sociability. However, evidence for this ad hoc interpretation awaits further research.

The standard deviations are given below each mean. Three constructs show declining interindividual variability over the decade following college graduation. Again, however, sociability shows a divergent pattern with age, with the standard deviation increasing over the entire 14-year period.

In sum, this research suggests that despite the high normative stability of the self-concept dimensions during the transition to adulthood, significant change over time occurs in the level or strength of these self-attitudes. That is, while the pattern of individual differences among respondents is preserved, the entire distributions of scores shift significantly over the three periods of time. These data suggest that perhaps more attention should be given to level changes or ordered shifts, which would complement and extend the study of normative stability in developmental analysis.

**D. IPSATIVE STABILITY**

To assess the level of ipsative stability, we examine the persistence of the ordering of the self-image components for each individual over time. We attempt
to answer the question. Do persons who view themselves as higher on some self-image components than others at one time maintain this rank ordering at a subsequent time? For example, do persons who perceive themselves as higher on competence than sociability in the freshman year continue to view themselves this way in the senior year, or a decade beyond college graduation? If they do, the ordering of the self-image components would be preserved. It must be remembered that such hierarchical persistence between two dimensions could exist even when both change markedly in level. We will assess the degree of ipsative stability with respect to the ordering of all four self-concept dimensions.

In this situation, when the intent is to compare the orderings of the dimensions across time for each individual, any standardization of items, based on the entire sample, would be inappropriate. For example, if an individual's score on a single semantic differential item were identical at two occasions, and if the sample mean had shifted between the two times, standardizing the individual's scores would indicate an intrapersonal change when none, in fact, had occurred. In investigating the ipsative question, we are interested in knowing whether a given person, when confronted on successive occasions with a series of 7-point semantid differential items, would respond in such a way as to preserve his previous rank ordering of dimensions. That is, we are concerned with the extent of "intrapersonal change" and, in comparing individuals and assessing more general trends, "the interindividual differences in intrapersonal change" (Bates & Nesselroade, 1973, p. 222).

To attain greater reliability of measurement, the use of multiple item indices is preferable to the examination of single items. Therefore, for each case, the responses to the relevant items for each dimension were summed. To assess the degree of stability of the resulting rank orders of scores across occasions, Spearman rho correlations were computed for each individual. The distributions of these intrapersonal correlations for the freshman and senior year scores, and for the scores in the senior year and 1976, are shown in Table III.

These cumulative percent distributions show considerable agreement in rank order across time. From the freshman to the senior year in college, the median rho is .758; that is, half the panel have correlations of .758 or higher. Only 12% have negative rank orderings over the two occasions. As in the case of the normative distributions, the distributions of rhos for the two periods are very similar.

Table III

<table>
<thead>
<tr>
<th>Rho</th>
<th>Freshman to senior year</th>
<th>Senior year to 1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative %</td>
<td>N</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>.81 to 1.00</td>
<td>30 (110)</td>
<td>27 (96)</td>
</tr>
<tr>
<td>.61 to .80</td>
<td>39 (107)</td>
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</tr>
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<td>-.19 to .00</td>
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</tr>
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<td>-.100 to -.80</td>
<td>100 (4)</td>
<td>100 (5)</td>
</tr>
</tbody>
</table>

Mean rho .585
Median rho 758
Modal rho 800, 1.00

* In this bimodal distribution, each value had 71 cases.

The average rho is .585 over the college period, and .566 over the following decade. We conclude that rather high ipsative stability exists for the members of this panel during the transition to adulthood. Our mean estimates of ipsative stability are quite similar to those reported by Block (1971; see Moss & Susman, 1980, p. 571) for the period from senior high school to the mid-thirties using the Q-sort, a very different measure of personality.

In summary, we have empirically examined four types of stability—structural invariance, normative, level, and ipsative. According to three of these criteria, high stability has been observed. First, with regard to structural invariance, the same dimensional structure was confirmed on the three occasions, covering a 14-year time span. Constraining the relationships of constructs to indicators to be equal across time provided a very good fit to the data, and showed that the meaning of each latent construct or dimension had not changed. Moreover, the relationships between different self-concept dimensions across time were highly similar. These analyses of structural invariance show that the structure of the self-concept had remained much the same during this period of transition to adulthood.

Secondly, our investigation of normative stability showed that interdimensional differences on each of the four self-concept dimensions were generally maintained across time, including both the 4-year and 10-year intervals. While the stability coefficients left considerable variance unexplained, we believe that their...
magnitudes are sizable, given the relatively long spans of time under scrutiny, particularly between the second and third observations, and the numerous role changes experienced by the respondents during these periods.

Third, our assessment of ipsative stability showed that the intraindividual ordering of the four self-concept dimensions was quite salient across time for most persons. That is, self-attributes that were highly salient at earlier periods tended to remain so subsequently. This kind of stability is noteworthy, given that the relevance of these self-attributes (such as sociability and competence) for role expectations and adaptations likely changes as adult statuses are acquired.

Because the period of life included in this research is characterized by marked role transitions, we believe that the stability that has been demonstrated is quite impressive. During this period, most respondents completed their formal educations, married, became parents, and embarked on their occupational careers. In spite of these changes, the structure of their responses to the semantic differential instrument, as indicated by three criteria of stability—structural invariance, normative, and ipsative—remained rather constant. In the final section of this article, we will give further attention to these important life events and their implications for the developing self-concept.

It is only with respect to the level criterion that consistent change has been observed. On three of the four dimensions, self-ratings declined during the college years. Then the respondents’ self-images improved following their graduation from college, as they attained a greater sense of competence and personal well-being, and became less likely to see themselves as “impulsive,” “a dreamer,” and “unconventional.” Reasons for the continuing drop in sociability throughout the period of observation may be a subject for further investigation.

As developed in our earlier discussion, each of the four definitions of stability establishes distinct conceptual criteria. We see from our attempts to apply these conceptualizations to empirical data that they involve different operational tests, and can manifest divergent trends over time. Students of life-span development have generally focused their attention on the normative stability of personality, finding that individual differences tend to be preserved. However, this study indicates that important changes in level may also occur during the process of development, and should not be overlooked. We conclude, on the basis of this research, that the presence of normative stability does not necessarily imply the three others. Confining attention to only one type of stability—be it structural invariance, normative, level, or ipsative—could obscure significant developmental trends.

While these findings emphasize the stability of the self-image, as defined by three of our four conceptual criteria, it must be pointed out that the findings—with respect to stability as well as change—may be a function of the features of this panel of college graduates. Their generally favorable life course could be conducive to the maintenance of a stable self-concept structure, producing structural invariance, ipsative stability, and the preservation of individual differences, and to increases in positive self-image attributes (e.g., well-being and competence) in adulthood.

It is also pertinent that the respondents represent only one cohort, exposed to the same set of historical events. Several studies have demonstrated psychological differences between cohorts (Douglas & Aremberg, 1978; Nessebroade et al., 1972; Schaie & Parham, 1976; Woodruff & Birren, 1972), and it is plausible that persons in different cohorts would also show different patterns of psychological stability and change. Neugarten and Deaton (1973) have argued that the historical context should be taken into account in life-span research, since life events may have different meanings depending on the broader social context in which they occur. Perhaps it is pertinent that the Michigan panel entered the labor market in the late 1960s and early 1970s, when employment prospects for college graduates were generally very good. Other cohorts, entering the job market in less salutary times, could experience less self-image stability, particularly with respect to self-concept dimensions, such as competence, that may be influenced by work. Moreover, in such cohorts, competence might manifest level stability after college, or even diminish, instead of showing the increase that we have observed. Certainly, with only one panel, it is impossible to distinguish age-related stability or change from cohort influences or period effects (Glee, 1980). Only additional longitudinal studies, including different cohorts, as well as more socioeconomically representative panels of men and women, can help to resolve these questions of generalizability (Schaie, 1977).

VI. Self-Concept Stability and Life Events

Now that we have examined the stability of the self-concept, we will attempt to understand this stability within the context of this particular panel by examining whether there are systematic differences, in either early attributes or later life circumstances, between those whose self-concepts remain stable and those whose self-concepts change over time. The ability to explain and predict the degree of stability and change through the life course has been recognized as a central problem of developmental analysis (Baltes et al., 1980, p. 95; Brim, 1980a; Costa & McCrae, 1980b; Moss & Susman, 1980, p. 544). In this investigation we use the level criterion of change, and because of space limitations,
TABLE IV
Mean Freshman, Senior, and 1976 Self-Competence* of Four Change Groups

<table>
<thead>
<tr>
<th>Competence</th>
<th>Freshman</th>
<th>Senior</th>
<th>1976</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreasers</td>
<td>-.16</td>
<td>.40</td>
<td>-1.29</td>
<td>45</td>
</tr>
<tr>
<td>Stable lows</td>
<td>-.50</td>
<td>-.72</td>
<td>-.87</td>
<td>88</td>
</tr>
<tr>
<td>Stable highs</td>
<td>.40</td>
<td>.65</td>
<td>.72</td>
<td>138</td>
</tr>
<tr>
<td>Increasers</td>
<td>-.40</td>
<td>-.108</td>
<td>.70</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>322</td>
</tr>
</tbody>
</table>

* Factor scores were constructed by summing standardized item scores. These composites were then also standardized to facilitate interpretation of group differences.

We will now provide a more concrete description of the differences in competence between the four groups identified by this procedure. For all three time periods, the standardized mean factor scores are presented in Table IV. The first row shows that the mean competence score of the “decreasers” was about .4 standard deviation above the total senior competence mean when they graduated from college. By 1976, they had fallen to 1.3 standard deviation units below the 1976 mean, certainly a substantial change, relative to that of other persons in the panel. The “increasers” show the opposite pattern: They move from more than 1 standard deviation below the senior mean to almost .7 units above the 1976 mean. In contrast to these two groups, there is much less difference in the scores for those we have designated “stable” over time.

It is of further interest to observe the freshman scores of these groups. Though the classification is based on change over the period after college graduation, we see that the stable groups have the same relative position in the freshman year as well. The “stable lows” were .5 standard deviation below the freshman mean, and have continued to decline since then. The “stable highs” were .4 standard deviation above the mean in the freshman year, and show a pattern of consistent increase after they entered college. Thus, the stable individuals show a highly consistent pattern throughout the period.

The situation is quite different for the unstable groups. Those designated as decreasers after college, in fact, increased in mean competence relative to their peers during their college years; the increasers, in contrast, declined in their sense of personal competence while in college. We therefore must conclude that the unstables have manifested a highly inconsistent pattern of self-concept change over the entire period of observation. The magnitude of these trends, across the three observations, coupled with the significant differences in life events experienced by the four groups (to be described), indicate that we are not merely identifying patterns of “regression toward the mean” in the unstable groups (see Baltes, Reese, & Nesselroade, 1977, pp. 164-165).

B. DIFFERENCES IN THE LIFE EXPERIENCES OF THE FOUR GROUPS

Our next task is to ascertain whether there are systematic differences in the experiences of the members of these four groups, or differences in their subjective reactions to life events. Mean differences in adolescent and adult life events (relations with father, educational and occupational attainments) are indicated in Table V. Differences in subjective reactions to life experiences (job satisfactions, career evaluation, marital satisfaction, and satisfaction with life as a whole) are given in Table VI. (All measures are given in the Appendix.)

First, it is evident from Table V that these four groups have experienced different patterns of relations with their fathers over the 10-year period (see columns 1 and 2). Though both “decreasers” and “stable highs” manifested a relatively strong sense of competence in their senior year of college (see Table IV), they differed quite markedly in their reports of father-son relationships. Those who were able to sustain a strong sense of personal efficacy over the decade indicated a closer and more empathic father-son relationship. Moreover, changes in the self appeared consistently to parallel the shifts in family relations. The “stable highs” and “stable lows” had respectively good and poor relationships with their fathers at both the beginning and the end of the period in question. The “increasers” improved their relationships with their fathers as well as their self-images over the decade, while for the “decreasers” both the quality of these relationships and personal competence declined. These data suggest that relationships in the family of origin may be of importance in determining the pattern of self-concept stability or change. (The same measures of relationships with mothers showed the identical pattern of differences among the four groups at both times.)

The remaining columns of Table V indicate levels of accomplishment in the educational and occupational spheres. With regard to educational achievement, the senior year grade point averages of the “increasers” were lower than any of

---

15 We are aware of the controversy surrounding the use of unadjusted gain scores (Bohmstedt, 1969; Lord & Novick, 1974). However, given the classificatory nature in which we employ these scores and in light of reservations expressed by others (Garside, 1956; Stanley, 1971), we feel their use here is appropriate and justified.

16 It could be argued that perceptions of relations with parents are the outcomes, not the causes, of self-concept development. Alternatively, there could be a continuing reciprocal relationship between these phenomena over time. But given the substantial evidence for the causal importance of relations with parents for personality development, our preferred interpretation of causality seems more justifiable than these plausible alternatives.
The competent adolescent, in effect, selected or created an environmental context at work which helped to sustain this self-perception in subsequent life phases.

If this pattern could be found to extend to other life experiences, there would be further evidence that the stability of the self-concept is at least partially dependent on the individual's own perceptions, activities, and strivings. These would serve to create life experiences that support the earlier self-image. If individuals have differential capacities to maintain stable life situations, even some nonnormative life events (that is, those over which the individual has some control), such as unemployment, may be predictable from previous personal attributes.

It is therefore necessary to examine the implications of the adolescent self-concept for early adult experiences. Does the adolescent's self-competence have significant consequences for adult life events? Can this self-concept dimension, measured in the senior year of college, predict the life experiences—either objective (i.e., occupational attainment) or subjective (i.e., job satisfaction)—which are found to be important in distinguishing persons who manifest different patterns of self-concept stability or change?

The purpose of the final section of the data analysis is therefore to investigate the causal dynamics of self-concept stability and change involving a complex interplay between the person and the environment. We will initially investigate whether there are differences in early, as well as later, life experiences, between those who change and those whose self-concepts remain stable. Have persons whose sense of personal competence has remained relatively stable over the 10-year period following college graduation experienced different life circumstances than those whose self-images have changed? Second, we will examine the relationships between the senior competence dimension and subsequent life experiences and attitudes. This part of the analysis will help us to understand the importance of individual differences in creating or responding to experiences which may engender self-concept stability or change. Finally, we attempt to assess the causal importance of life experiences in generating self-concept change. To do this, we assess whether life experiences continue to have significant effects on competence in 1976 when competence in the senior year of college is controlled.

A. FOUR GROUPS WITH DIFFERENT PATTERNS OF SELF-CONCEPT STABILITY AND CHANGE

First, to be able to study the life experience correlates of self-concept change and stability, it is necessary to identify the persons whose competence has increased, decreased, and remained constant over time. In attempting to classify the panel in this way, the question arises: How much change should be consid-
examine only one of the four self-concept dimensions—self-competence—from our second to third observations. We thus focus on ordered shifts in the sense of individual competence after college. While we have demonstrated an increase in competence in the sample as a whole after college, this is an average trend that does not apply to each individual. Specifically, we ask: Do those who change (increase or decrease) in their sense of personal competence during the decade following college graduation differ from those who remain stable (continually high or low) on this dimension over the same period of time?

It is often asserted that the degree of stability of personality is a function of the constancy of environmental circumstances surrounding the individual (Baltes & Nesselroade, 1973, pp. 237–238; Kagan, 1980, p. 62). Moss and Susman (1980) make this point very well:

Longitudinal findings on stability or change are occasionally discussed as if they represent a discovery of an invariant and irrevocable development truth ... if a study demonstrates stability for individual differences on "aggressive behavior" it is tempting to proclaim that aggression is stable (as an absolute phenomenon) without considering the relative nature of this finding and all the contingent and contextual factors that might alter or dilute it. Longitudinal findings such as these should be viewed not as conclusive facts but as information that, when interpreted . . . in the context of the life events and prevailing conditions for the subjects being studied, could enhance a developmental theory of personality. Much of the stability that is observed is probably a function of the individual's living in a stable environment while maintaining a psychological equilibrium. However, a crisis or major change in environment . . . could dramatically alter a personality. (p. 543)

Thus, psychological stability or change need not be attributed to an unalterable internal dynamic, or to temporarily distant determining forces (such as early parent–child relations) operating through a person's life, but may be explicable in terms of the ever-present continuities or discontinuities in environmental circumstances (Kagan, 1980, p. 68). Clausen (1972) has observed that personality stability is anchored in stable role positions and in the interpersonal commitments attendant on the incumbency of constant social roles. Consistent with this position, Glenn (1980) hypothesizes that some attitudes and values become more stable with age because the social environment also becomes more stable after the early phases of adulthood.

The period following college graduation is one characterized by many age-graded, normative events (Baltes et al., 1980) or expected role changes, such as the completion of formal education, the entrance into full-time employment, marriage, and parenthood. The positive or negative character of these experiences may be important sources of self-concept stability or change. Nonnormative events (Baltes et al., 1980, pp. 74–76), such as divorce, career change, unemployment, or other "crisis-like" circumstances, may also occur during this period. These events, disrupting earlier environmental stability, could lead to a redirection of the course of self-concept development.

If self-concept stability is, in fact, dependent on a stable environmental milieu, we might find that a continuously positive sense of individual competence is reinforced by continuous evidence of self-efficacy and achievement. The perception of self as competent and successful could be sustained in college by high grades; in adulthood, by work autonomy, high income, or other evidence of achievement (Mortimer & Lorence, 1979a). Alternatively, the absence of objective achievements that can be attributed to one's own efforts could engender a continuously poor self-image over time. The level of social support may also be pertinent to the maintenance of a sense of competence during the transition to adulthood.

Individuals whose self-concepts change are of particular interest in this analysis. If environmental circumstances are so important for self-image development, we might expect to find that those who change have experienced different, and less continuous, life events. As a result, growth toward a greater sense of competence may be accompanied by increases in social support or personal demonstrations of achievement. In contrast, diminished competence could result from disruption in personal relationships or a failure to achieve in normatively patterned ways. Systematic differences in life events between those who change upward, as well as downward, on this self-concept dimension could thus indicate the environmental sources of change in the self-image, and perhaps also—given the similarity of our competence dimension and the psychological constructs of personal efficacy and internal control—the sources of change in mental health.

But the individual should not be viewed as merely a passive recipient of external forces—whether normative or nonnormative—but is more likely an active selector and molder of the situational context. According to Cottrell (1969), "Much of our activity and striving, perhaps most of it, is directed toward establishing and maintaining social contexts supportive of desired identities, or toward changing contexts that impose unwanted identities." (p. 550; see also Rosenberg, 1979, Chap. 11). Moreover, the preservation of a consistent and stable sense of self has been postulated as a major motivational goal (Epstein, 1973; Korman, 1970; Lecky, 1945; Rosenberg, 1979) even when the self is characterized by negative, undesirable qualities. Recent experimental evidence (Snyder, 1981a, 1981b) supports the proposition that individual consistencies are a result of consistency in the actor's constructed social worlds. The active creation and maintenance of stable environmental contexts could thus be an important mechanism through which personal stability in the self-image is attained (see Costa & McCrae, 1980b; Mishel, 1973; Wachtel, 1973).

Providing some support for this formulation, earlier analyses of the data suggested that self-competence promotes values conducive to the achievement of high levels of work autonomy. This autonomy in the work sphere, in turn, was found to reinforce a positive self-attitude in subsequent phases of development
TABLE V

<table>
<thead>
<tr>
<th></th>
<th>Senior relations with father</th>
<th>1976 relations with father</th>
<th>Senior grade point average</th>
<th>Education</th>
<th>Employment insecurity</th>
<th>Income</th>
<th>Work autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreasers</td>
<td>-10</td>
<td>-72</td>
<td>2.99</td>
<td>7.13</td>
<td>45</td>
<td>5.64</td>
<td>3.73</td>
</tr>
<tr>
<td>Stable lows</td>
<td>-41</td>
<td>-21</td>
<td>2.95</td>
<td>7.30</td>
<td>30</td>
<td>5.65</td>
<td>3.66</td>
</tr>
<tr>
<td>Stable highs</td>
<td>44</td>
<td>28</td>
<td>2.90</td>
<td>7.34</td>
<td>21</td>
<td>6.38</td>
<td>3.99</td>
</tr>
<tr>
<td>Increasers</td>
<td>-54</td>
<td>15</td>
<td>2.70</td>
<td>6.92</td>
<td>30</td>
<td>5.98</td>
<td>4.08</td>
</tr>
<tr>
<td>Total</td>
<td>-01</td>
<td>-01</td>
<td>2.90</td>
<td>7.23</td>
<td>28</td>
<td>6.01</td>
<td>3.88</td>
</tr>
<tr>
<td>F</td>
<td>6.03***</td>
<td>3.44*</td>
<td>3.93***</td>
<td>3.60*</td>
<td>3.03*</td>
<td>4.08*</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

**p < .01.

***p < .001.

The other groups (see column 3). Column 4 shows that the two stable groups had higher levels of postgraduate educational attainment than the unstable ones. These findings with respect to our two measures of educational achievement (the unstable ones) are very likely to be taken, and marital satisfaction. Again examining the correlations of the senior year and the indicators of social support, particularly in the population studies (highs and lows), however, no marked differences were found in these two groups, the relations of the senior variables with each other. Among the stable individuals, the relation of the senior variables with each other was quite noteworthy. Among the unstable individuals, the relation of the senior variables with each other was quite noteworthy.
ships with fathers and mothers in the senior year were positively correlated with 1976 marital satisfaction ($r = .307$ and .298, respectively). Among the un-stables, there were only weak and negative relationships between these variables ($-.095$ and $-.027$). Furthermore, examining this correlation within each of the four change groups showed that it was similarly positive among the “stable highs” and the “lows,” but weak and negative among the “increasers” and “deceasers.” This pattern indicates, consistent with our hypothesis, that stability in the self-image during the transition from adolescence to adulthood is related to the stability of social support derived from the most significant others during each respective phase of life: from parents in late adolescence, and from the spouse in early adulthood.17

Turning to the subjective responses to life experiences in the four change groups, Table VI presents the mean differences in extrinsic and intrinsic job satisfactions, subjective assessment of career progress, marital satisfaction, and overall satisfaction with life. The consistency in the general pattern of relationships is quite remarkable, manifested in all three reactions to work, to marriage (though in this instance, the differences fail to reach statistical significance), and to life as a whole. In each case, “deceasers” and “stable lows,” both of whom showed a relatively low sense of competence by the end of the period, indicated less positive subjective responses than the “increasers” and the “stable highs.”18

The fact that this pattern parallels that shown in Table V for family relationships and occupational attainments suggests that the differences in subjective responses in these four groups occur simply because of the variations in their objective circumstances. For example, since the “increasers” and the “stable highs” have achieved higher income and work autonomy by the end of the decade, we would expect them to be more satisfied with their jobs and to evaluate their career progress more positively. Their higher occupational attainments, coupled with their more positive relationships with their parents, could likewise explain their greater overall satisfaction with life.

However, there is another plausible interpretation of these differences in reactions to work, family, and life as a whole. Individual dispositions, as indicated by senior competence, could contribute to the differences in responses to later life experiences, and perhaps the ability to adapt to them. Thus, the more self-

17For all groups, relations with parents were highly correlated across time. The correlations between senior parent-son relationships and marriage showed an inconsistent pattern of variation among the groups.

18The same pattern was shown with respect to the individual’s perceived chances for future advancement and a measure of self-criticism. The following variables did not distinguish the four groups: career change, voluntary organizational participation and involvement, marriage and marital involvement, parenthood and parental involvement, and an overall self-assessment of physical health.
TABLE VII
Standardized Regression Coefficients Indicating the Effects of Senior Competence on Life Experiences

<table>
<thead>
<tr>
<th>1976 Relations with father</th>
<th>Educational attainment</th>
<th>Employment insecurity</th>
<th>Income</th>
<th>Work autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extrinsic job satisfaction</td>
<td>.069</td>
<td>-.115*</td>
<td>.146**</td>
<td>.130**</td>
</tr>
<tr>
<td>Intrinsic job satisfaction</td>
<td>.193***</td>
<td>.111*</td>
<td>.301***</td>
<td>.156**</td>
</tr>
</tbody>
</table>

*p < .05,  **p < .01,  ***p < .001.

magnitude attests to the importance of the many external circumstances occurring during this 10-year period, which could also influence the life events. For example, unemployment and income attainment result from numerous factors, many of which are totally beyond the individual’s personal control (e.g., the number of persons seeking jobs in a field at a given time; local economic conditions). In view of the multiple determination of these outcomes, it would be very surprising to find large impacts of early psychological variables on these later life events. It is also possible that the effects are attenuated by errors of measurement in both the independent and dependent variables, which have not been extracted in these analyses.

Though they are small, the fact that the adolescent self-image has significant effects on later attainments is of considerable interest, since these influences likely represent the individual’s own contribution to environmental contexts which may be important in explaining psychological stability and change over time. These findings suggest that important life events, particularly in the work sphere, are not independent of the individual’s earlier sense of competence. The fact that life events are predictable from enduring individual characteristics may seem obvious, but this possibility is sometimes overlooked in discussions of the implications of the environmental context for change in personality. It appears that a favorable or unfavorable environment for life-course development does not just happen, but is created, at least to some extent, by the person.

The lower portion of Table VII shows the influence of the senior competence dimension on the subjective responses to life experience. Overall, the effects of the self-concept dimension are more pronounced for these subjective experiences than they were for the objective events. Considering first the individual’s reactions to work, senior year self-competence significantly predicts extrinsic and intrinsic job satisfactions a decade later. Self-competence is a relatively strong predictor (.301) of the individual’s subjective evaluation of his career progress. Clearly, this earlier self-image component has significant implications for subsequent adjustment in the work sphere.

Turning to the family arena, the adolescent self-image dimension has a positive, though smaller, influence on later marital satisfaction. As before, those with a higher sense of competence in the senior year are found to be more satisfied and involved with their families. (Senior competence also predicted marital and parental involvement, not shown.) Finally, senior self-competence has positive effects on the person’s 1976 overall satisfaction with life.

When it is remembered that the self-image dimension and these subjective evaluations of life experiences are separated by an intervening decade, the consistency of these relationships becomes impressive. Surely, these findings indicate that enduring personal qualities influence later subjective reactions to life events. As noted earlier, this pattern of findings could be attributable to the fact that persons with more favorable early self-images have been able to achieve the objectively better life situations. We have already presented evidence that they are in the more desirable jobs, with higher incomes and work autonomy. These individuals may also have more compatible marital partners, and generally, more positive life circumstances.

Alternatively, these relationships may constitute evidence that enduring personal dispositions exist somewhat independently of objective life events. If this were the case, even if we held these situations constant, those who perceived themselves as more competent would still be more satisfied and optimistic about their work experiences, more sanguine about their families, and more satisfied about the overall quality of their lives. Sears (1977) has attempted to assess the relative importance of objective achievements and subjective states in determining the occupational satisfaction of the Terman gifted men. His conclusion is quite compatible with this alternative explanation:

So, the objective facts of life—the high-level preparation, the success and status and financial rewards received—appear to have had negligible importance in determining final satisfaction with the occupational side of life. Rather, it looks as if there were some continuing affective quality—an optimism about life, an enjoyment of occupational combat, and a feeling of self-worth—that characterized the more satisfied of these men at age thirty and persisted through the next three decades of their lives. (Sears, 1977, p. 123)

This interpretation is consistent with the findings of Costa and McCrae (1980b), who report that neuroticism and extraversion predict measures of negative and positive affect 10 years later. They argue that an enduring quality of neuroticism in adult men is expressed in different ways in distinct periods of life—variously as job dissatisfaction, marital troubles, concerns over failing health, and so forth (see also Costa & McCrae, 1980a; Costa, McCrae, & Norris, 1980). Similarly, Kessler and Cleary (1980) have recently presented evidence that the differences in distress experienced by middle- and lower-class persons
are due mainly to their differential reactions to stress, not to their differential exposure to stressful experiences (see also George, 1978; Lieberman, 1978-1979; Pearlman & Schooner, 1978).

Definitively evaluating the merits of these two plausible explanations of the relationships between senior self-competence and subjective reactions to life experience is well beyond the domain of this article. However, we do have some evidence that subjective reactions to work are affected by the enduring self-concept, independent of actual attainments. The effect (standardized regression coefficient) of senior self-competence on the evaluation of the career diminishes only slightly—from .301 to .285—when employment instability, income, and work autonomy, three important elements of the career, are included in the regression. Moreover, the effect of this earlier self-concept dimension far outweighs that of the work experiences (the betas for income, work autonomy, and employment insecurity are .15, .03, and .01, respectively). (Senior competence also significantly influences extrinsic job satisfaction when the same work variables are controlled, Yet the pattern is not upheld for intrinsic satisfaction.)

It is intriguing to speculate that an enduringly positive outlook could, in fact, become a self-fulfilling prophecy, generating a continuing relationship between personality and events throughout the life course. For example, in the realm of work, a sense of personal competence and success could motivate greater effort and more responsive reactions to opportunities. Thus, for persons in their early work careers with a strong sense of competence, future prospects may be more favorable, even holding constant job demands, the individual's location on a career ladder, the level of competition for higher level positions, and the like. And similar arguments could easily be constructed regarding events in other life spheres.

But acquiring information on the respondents' objective family situations, or their actual circumstances in other life contexts, would require another, more intensive kind of study. Regardless of whether the more competent adolescents have constructed the more favorable life events, or whether their earlier competence creates a positive "set" that colors perceptions of subsequent life circumstances, both explanations attest to the active involvement of the individual in creating his life experiences (see Lerner & Busch-Rossnagel, 1981). Moreover, subjective interpretations of life events may be of equal or greater importance than objective circumstances in determining the course of future psychological development.

D. LIFE EXPERIENCES AS DETERMINANTS OF THE SELF-CONCEPT

We have thus far determined that life experiences significantly distinguish the four change groups in a manner that is consistent with our expectations, and that these life experiences, both objective and subjective, are themselves partially determined by the individual's earlier self-image. It is now pertinent to inquire whether the life experiences have independent effects on self-concept development, net of the previous, highly stable self-image dimension. To do this, we first regress 1976 self-competence on life experiences, and then add senior self-competence as a second predictor to the regression equation. The partial beta coefficients indicate the net effects of adult life experiences on the self-image, independent of self-concept stability. The difference between the first zero-order coefficient and the partial beta indicates the extent to which the effect of life experiences on the adult self-concept is attributable to the covariation of each with the earlier adolescent self-image.

It is evident from Table VIII that the life experiences have significant independent effects on 1976 competence, net of earlier self-competence. Employment insecurity is found to have a negative impact on this measure of personal efficacy, while income, work autonomy, and close relations with the father have positive effects. It is noteworthy that the impacts of life experiences on the 1976 self-image do not diminish substantially when senior self-competence is controlled.

Turning to the subjective life events, we find that subjective reactions to work have considerably stronger effects on 1976 competence, which again diminish very little when senior competence is controlled. Apparently independent of the earlier self-image dimension, extrinsic and intrinsic job satisfactions and perceptions of progress in one's career make the individual feel more competent over time. Happiness with life has a similar, though smaller, positive net effect.

| TABLE VIII |
| Standardized Regression Coefficients Indicating the Effects of Life Experiences on Competence, and Standardized Partial Regression Coefficients, Controlling Senior Competence |

<table>
<thead>
<tr>
<th>1976 Relations with Father</th>
<th>Educational attainment</th>
<th>Employment insecurity</th>
<th>Income</th>
<th>Work autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>.175***</td>
<td>-.007</td>
<td>-.156***</td>
<td>.188***</td>
<td>.221***</td>
</tr>
<tr>
<td>.135**</td>
<td>-.037</td>
<td>-.107*</td>
<td>.127**</td>
<td>.168***</td>
</tr>
<tr>
<td>Extrinsic job satisfaction</td>
<td>Intrinsic job satisfaction</td>
<td>Career evaluation</td>
<td>Marital satisfaction</td>
<td>Life satisfaction</td>
</tr>
<tr>
<td>.318***</td>
<td>.300***</td>
<td>.441***</td>
<td>.151**</td>
<td>.256***</td>
</tr>
<tr>
<td>.245***</td>
<td>.256***</td>
<td>.338***</td>
<td>.085</td>
<td>.180***</td>
</tr>
</tbody>
</table>

*p < .05
**p < .01
***p < .001
From these analyses, it would seem that the relationship between life experiences and the self-concept is truly reciprocal. Early self-competence influences later objective and subjective life events, which, in turn, contribute to the further course of self-image development. Nonetheless, because of some important limitations of this research, these findings should be considered only tentative. First, as already noted, these effects are not corrected for measurement error, which could attenuate the relationships. Second, we are examining only the effect of each life experience variable on the 1976 self-image dimension net of self-concept stability, while the fact that the life events are themselves interrelated necessitates the construction of more complex, multivariate models. Third, a more convincing analysis would include controls for socioeconomic background, and perhaps other variables, to demonstrate that our findings are not spurious. Fourth, we do not take into account the likely possibility that truly reciprocal relationships exist among the life experiences and the self-concept throughout the period of study. Such dynamic reciprocal relationships would seem to be particularly likely for subjective life experiences and the self-image.

However, other analyses of these data with respect to the work experiences and self-competence correct for some of these deficiencies (Mortimer & Lorence, 1979a; Mortimer, Lorence, & Kunika, in preparation). Using structural equation models incorporating measurement error, work autonomy has been found to have independent effects on competence even when earlier competence, income, and a measure of career stability were controlled. Previous analyses of the data have also demonstrated very weak, and for the most part, nonsignificant effects of socioeconomic background on subsequent occupational attainments and attitudinal outcomes. Furthermore, in support of our reciprocal conceptualization of the relationship between person and environment, the senior self-concept was found to influence subsequent work autonomy, but 1976 competence had no significant contemporaneous effect on this work experience. Still, these analyses do not include the subjective measures of reaction to work, which may also significantly contribute to self-concept development. Thus, though this further investigation does not include all the life experiences found here to be related to patterns of self-concept stability and change, the findings are in substantial agreement with the argument presented.

Clearly, in spite of the limitations of this particular analysis, the implication of the findings is that the individual actively creates the environmental context, both objective and subjective, which, in turn, feeds back on the personality, contributing to the subsequent development of the self-image. While more definitive conclusions await the estimation of a more comprehensive structural model, the results of this preliminary analysis are certainly suggestive. What is indicated is a truly dynamic and reciprocal relationship between the person and the environment—a finding wholly consistent with recent formulations in social psychology (Gecas, 1981; Howard, 1979; Looft, 1973; Mischel, 1973, 1977; Overton & Reese, 1973; Snyder, 1981a).

VII. Conclusion

In this research, we have examined the stability of the self-concept, as measured by a semantic differential scale. We have determined that this multidimensional self-concept is structurally invariant over the period of transition to adulthood, and both normatively and ipsatively stable. Its stability, while impressive, left ample room for the impacts of significant life events—both objective and subjective—on self-concept change. Furthermore, significant differences in level over the periods of observation were discovered. Groups defined by patterns of level stability and change on one dimension—self-competence—were found to have distinctive life experiences, involving family relationships, experiences of unemployment and related difficulties, attainments of income and work autonomy, subjective reactions to work and career, and marital and overall life satisfaction. These findings suggest that certain life events may have a causal role in inducing self-concept change.

In the remainder of the article, we attempted to elucidate the causal dynamics of self-concept stability and change. We examined the contribution of the earlier self-image for later life events, and the subsequent implications of these events, independent of the enduring self-concept, for the 1976 self-image. In fact, the life experiences found to distinguish the four change groups in a manner consistent with our expectations were generally partially determined by the earlier self-concept component. But these experiences also significantly contributed to self-concept development during the decade after college. We interpreted the findings as suggesting a reciprocal relationship between life experiences and the self-image.

As Brim (1980a, 1980b) has observed, the study of personality and situational determination of behavior in psychology is paralleled by the nexus of personality stability and life events in life-span research. Psychologists have recognized that the greatest variance in behavior is often explained by the interaction of person and situation (Ekehammar, 1974; Hogan et al., 1977). Longitudinal study of personality development over time has a crucial advantage over the traditional psychological experiment because the individual's active contribution to life experience—as well as his reactions to it—can be studied. Studies of human development across phases of the life course may increasingly reveal that the individual actively creates important events, of both an objective and subjective character, and that these experiences have important consequences, at a later time, for the developing adult personality.
VIII. Appendix: Life Experience Measures

"Senior Grade Point Average"

What is your overall grade point average? (Averages were based on a 4-point scale.)

"Senior and 1976 Relations with Father"

How well do you feel your parents understand you and what you want out of life? (4, very well; 3, fairly well; 2, not too well; 1, not at all)

How close do you feel to your mother and to your father? (4, extremely close; 3, quite close; 2, fairly close; 1, not very close)

The responses, made separately for the father and mother, were standardized and summed, to produce an index for each parent.

"Education"

Responses to a question on postgraduate education were used to construct a measure of educational attainment with the following categories: 5, B.A.; 6, some education beyond the B.A.; 7, M.A.; 8, Ph.D. or professional degree.

"Employment Insecurity"

Employment insecurity is a summary variable, based on three questions, coded 1, if the respondent experienced any subemployment, unemployment, or involuntary part-time employment since college graduation; and 0, otherwise.

"Income"

What is the gross annual income that you earn in wages or salary from your main job? (1, under $3,000; 2, $3,000-4,999; 3, $5,000-9,999; 4, $10,000-14,999; 5, $15,000-19,999; 6, $20,000-24,999; 7, $25,000-29,999; 8, $30,000-34,999; 9, $35,000-39,999; 10, $40,000 and over)

"Work Autonomy"

Overall, how much autonomy do you have in making important decisions about what you do at work and how you do it? (5, complete autonomy; 4, a great deal of autonomy; 3, a fair amount of autonomy; 2, some, but not much autonomy; 1, almost none at all)

"Extrinsic Job Satisfaction"

Extrinsic job satisfaction is a summated scale of standardized scores for four aspects of job satisfaction: how highly people regard the job, opportunities for advancement, a secure future, and high income (1, very dissatisfied; 2, dissatisfied; 3, satisfied; 4, very satisfied)

"Intrinsic Job Satisfaction"

Intrinsic job satisfaction is a summated scale of standardized scores for eight aspects of job satisfaction: opportunities to exercise my abilities and skills, opportunities to express my interests, opportunities to exercise leadership and responsibility, the chance to be helpful to others or useful to society, opportunity to be creative and original, adequate recognition for my accomplishments, freedom from supervision—the chance to make my own decisions, and a chance to work with people rather than things (1, very dissatisfied; 2, dissatisfied; 3, satisfied; 4, very satisfied)

"Career Evaluation"

How would you compare yourself to the people who started out in your line of work at about the same time you did? Have you done: 1, much less well than average; 2, less well than average; 3, about average; 4, better than average; 5, much better than average.

"Marital Satisfaction"

All in all, how satisfied are you with your marriage? (6, very satisfied; 5, satisfied; 4, just somewhat satisfied; 3, somewhat dissatisfied; 2, dissatisfied; 1, very dissatisfied)

"Life Satisfaction"

Consider how your life is going now. Would you like it to continue in much the same way, or would you like it to change? (1, I would like to change many parts of it; 2, I would like to change some parts of it; 3, I would like it to continue in much the same way as it's going now)

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