

Perceiving Middle-Aged Adults: Effects of Stereotype-Congruent and Incongruent Information

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Normative beliefs about mid-life involve stereotypic expectations about age-appropriate development and behavior. This study examined the effects of violations of the stereotypic clock on interpersonal judgments. Each subject read descriptions of persons who, given their position in life, appeared to be 30, 45, or 60 years old. In the experimental condition but not in the control condition, stereotypic expectations about mid-life were activated by explicitly stating that the person was 45 years old. As predicted, subjects judged stereotype-incongruent persons against the background of stereotypic age-related expectations. Subjects evaluated unusually advanced persons (women in particular) more positively, and unusually delayed persons more negatively than stereotype-congruent persons. Stereotype-incongruent persons were rated as less typical, elicited greater surprise, and afforded more extensive causal explanations than stereotype-congruent persons.

THE prevalence of age stereotypes shows that age plays an important role as an organizing principle in social perception. Unlike other prominent variables of social categorization (e.g., sex, race, or nationality), however, age categories have no clear socially defined boundaries. Although age is a continuous chronological variable, people tend to break down the life span and categorize themselves and others into discrete age segments (e.g., Kogan, 1979; Shannan & Kedar, 1979). The segments of young, middle-aged, and old adulthood are associated with a network of stereotypic expectations about social roles (Neugarten, Moore, & Lowe, 1965), life events (Modell, Furstenberg, & Strong, 1978), and stages of personality development (Heckhausen, Dixon, & Baltes, 1989; Heckhausen & Krueger, 1993; Krueger & Heckhausen, 1993; Ryff & Heinke, 1983). Research shows that stereotypic age-related beliefs affect judgments about individuals at least as much as do gender stereotypes (Kite, Deaux, & Miele, 1991).

The common usage of the term "stereotype" is limited to personality traits seen as typical of a group (Judd & Park, 1993). In contrast to this prevalent view, we assume an associatively richer view of stereotypes, one that subsumes a range of person-attributes such as demographic and role-related characteristics (Andersen & Klatzky, 1987). The goal of the present study was to examine the effects of stereotypes about mid-life on judgments about specific middle-aged persons. To do this, the study required a design in which the congruence of individual persons with the age stereotype varies systematically.

Developmental age can be inferred from a characteristic or a set of characteristics that vary with the actual age in the typical person. Consider a person who shows attributes and role behaviors that are typical for his or her age. The characteristics of such a person are congruent with prevalent age-related beliefs. It is expected, for example, that a 65-year-old person retires from work. Conversely, a person may appear or act in ways considered too young or too old

for his or her age. In this case, the person information is incongruent with stereotypic expectations. A septuagenarian siring a son or a sophomore writing a will are extreme examples of incongruence. As these examples illustrate, stereotype-congruence — or incongruence — depends on the match or mismatch between a person's actual and developmental age. The question is whether stereotypic expectations play a role in judgments about incongruent individuals or whether such individuals are judged on the basis of their personal characteristics alone. We develop and test the hypothesis that age stereotypes involve cultural notions of the appropriate timing of life events and affect judgments about individuals. Specifically, age stereotypes will produce an "attribution of contrast" in judgments about stereotype-incongruent persons (Heckhausen, 1990). Middle-aged people whose developmental age differs from their actual age are expected to appear atypical and surprising. They should elicit more extreme evaluations and causal inferences about their life situation than do people whose developmental age is congruent with their actual age.

Contrast Effects in Social Judgment

Under certain conditions, judgments about a stimulus (person) are more extreme when the stimulus is in a context of different stimuli or when the stimulus is inconsistent with a rater's expectancy. Contrast effects result from ad hoc stereotypes created in the laboratory and from established social stereotypes (Krueger & Rothbart, 1990; Manis, Nelson, & Shedler, 1988). In studies on sex stereotyping, aggressively acting women were liked less, were rated as more aggressive, and were seen to be in greater need of therapy than men acting the same way. Submissively acting men were liked less, were rated as more submissive, and were seen to be in greater need of therapy than women acting the same way (Costrich, Feinstein, Kidder, Marecek, & Pascale, 1975; see also Condry & Ross, 1985). Jussim, Coleman, and Lerch (1987) tested attributions of contrast in

racial stereotypes. In their study, Black target persons who had an upper-class appearance and who spoke Standard English violated stereotypic expectancies, whereas White targets who had the same characteristics did not. White subjects rated the Black targets more favorably than the White targets.

Research on stereotypes about old age supports the idea that evaluations of incongruent individuals are contrasted away from the general evaluation of the stereotyped group. Old people in general are seen as weak, passive, and dependent, whereas specific old people are judged positively (Green, 1981). Specific old people are often evaluated more favorably than young people who display the same characteristics (Crockett, Press, & Osterkamp, 1979). Active or independent behaviors appear particularly youthful if exhibited by an old person. According to the attribution-of-contrast model, negative stereotypic expectations about old people are the background against which the attributes of specific old people are evaluated (Heckhausen, 1990). Because stereotypes of old age tend to be negative, the label "old person" may lead perceivers to impute stable dispositions inhibiting assertive or sociable behavior. If an individual old person acts vigorously, or unexpectedly performs well on a task, his or her energy or ability are regarded as particularly high.

Stereotypes About Old Age and Mid-life

Research on age stereotypes has concentrated on perceptions of the elderly, perhaps because negative views of the old are more salient, more homogeneous, and more likely to entail discriminatory ageism than stereotypes about the middle-aged or the young. Often, stereotypes about the young are merely assessed as comparisons in studies focusing on old age (Brubaker & Powers, 1976; Labouvie-Vief & Baltes, 1976). The focus of research on negative stereotypes about old age is justified, but it limits the range of conclusions that might be drawn about the effects of age stereotypes on person perception. To broaden the scope of research, it is necessary to examine variations in the expected timing and the actual timing of life span events. Therefore, for a full test of the attribution-of-contrast hypothesis, it is necessary to manipulate experimentally whether a target individual appears to be younger or older than a stereotypic person of his or her age. Such a test is difficult to perform with stereotypes of the elderly. The elderly whose attributes are incongruent with the stereotype of old age tend to appear younger than they are. There are few old people whose stereotype-incongruent attributes make them appear older than they are. Moving the focus of stereotypic expectations from old age to mid-life permits the bi-directional manipulation of stereotype-incongruency. Focusing on stereotypes about mid-life, we can ask whether the implications of the attribution-of-contrast hypothesis generalize to evaluations of people who appear younger or older than their age.

The typical middle-aged person has attained a number of socially prescribed goals and has assumed normatively expected roles in important life domains, such as family and work (Levinson, 1978; Riley, 1971). Goal attainments or role activities stereotypically associated with young adulthood or old adulthood are unexpected for a middle-aged

person. Thus, a person whose life situation is more consistent with expectations about young or old adulthood is incongruent with the stereotype of middle age. Such an "off-time" person who has characteristics typical of young adulthood would appear developmentally delayed. Conversely, a person who has characteristics expected to accrue later in life would appear developmentally advanced. Only a person who has characteristics that match the stereotype of middle age does not deviate from the expected developmental pace. Such an "on-time" person is congruent with the stereotype. Hence, the developmental age by itself is less important in age-related person perception than the combination of developmental age and actual age.

Because developmental age is not unidimensional, a person may be on-time in one area and off-time in another. We use two key domains of adult life, family and work. The selected stereotypes are beliefs about the typical — somewhat idealized middle class — development in a white-collar career and raising a small family. For both life domains, we assume that greater accumulated goal attainments reflect greater developmental age. In the work domain, the stereotypical successful life is marked by consecutive, progressive achievements, and promotions or other recognition of accomplishment (Rapoport & Rapoport, 1969). In the family domain, the stereotypical successful life is marked by a committed relationship with a spouse and care for a small number of children. With the advent of the dual-career family (Gilbert, 1993), variations in the developmental age in both domains are likely and informative for both sexes.

Overview and Hypotheses

To test the attribution-of-contrast hypothesis, we varied the direction (delay vs advancement) of the deviation from the stereotype of mid-life. In earlier research on perceptions of the elderly, the degree of the deviation was implicit (e.g., How young does a 67-year-old downhill skier seem to be?). In this study, we specified the degree of the deviation (15 years). Pilot subjects supplied stereotypic expectations about the work situation of three adult middle-class age groups (30-, 45-, and 60-year-old) and about the family situation of the same age groups. Combining the two sets of expectations to form all possible pairs, we constructed 18 descriptions (9 men and 9 women). In the experimental condition of the main study, all target persons were said to be 45 years old, but the content of each target person's description suggested one of the three developmental ages for the work domain and one of the three ages for the family domain. In the control condition the person's actual age was not stated. Thus, subjects could not evaluate the degree of congruence between the person's actual age and the individuating information.

We expected that ratings of typicality and age estimates would reflect the effectiveness of the experimental manipulations. Persons whose descriptions were incongruent with the stereotype about mid-life should be rated as less typical of middle age than persons whose descriptions were congruent with the stereotype. In the control condition, estimates of the target person's age should vary with the developmental age embedded in the descriptions. Descriptions of 30-year-olds should be rated as younger than descriptions of 45-year-

olds, which, in turn, should be rated as younger than descriptions of 60-year-olds.

For the variables central to tests of the attribution-of-contrast model, we expected stereotype effects to emerge as interactions between the developmental age and condition (actual age provided vs no explicit age information). Specifically, the person's developmental age should have an effect in the experimental condition but not in the control condition. Because commonsense conceptions about lifespan development vary little across raters of different ages (Heckhausen et al., 1989; Heckhausen & Krueger, 1993), young, middle-aged, and old subjects should show similar attribution-of-contrast effects.

From the attribution-of-contrast model, we predicted that stereotype-incongruent persons (developmentally advanced or delayed) should constitute novel stimuli because of their atypicality. Stereotype-incongruent persons should elicit greater surprise than congruent persons (Langer, Fiske, Taylor, & Chanowitz, 1976; Meyer, 1988), and they should elicit more thought, resulting in more elaborate first impressions. The amount of thought should predict the extremity of evaluative judgments. According to Tesser (1978), the more people think about a stimulus object, the more they organize their cognitions about the object to achieve evaluative consistency. Consistency, in turn, results in more extreme judgments. Thus, in the experimental condition, but not in the control condition, apparently older persons should be rated more favorably than apparently middle-aged persons, who, in turn, should be rated more favorably than apparently young persons.

It should be noted that the attribution-of-contrast model does not claim that developmental delays will invariably be disparaged. When the trajectories suggest loss and increasing disadvantage, delays should appear in a positive light. The typical positive response to younger-appearing elderly is a good example for this. Only when the stereotypic developmental trajectory involves gradual personal gains (as in this study), delays should be judged as negative. In the experimental condition, being off-time in regard to typical development in mid-life implies either accelerated or decelerated completion of developmental tasks (Havighurst, 1956) (see Appendix, Note 1). If stereotype-incongruent persons lead to perceptual contrasts with expectations about the group, advanced target persons should be liked more, should receive greater respect, and should be seen as more satisfied than on-time persons who, in turn, should be rated more favorably than delayed targets.

Finally, the attribution-of-contrast model predicts that deviations from stereotypic expectations elicit spontaneous causal search (Pyszczynski & Greenberg, 1981; Weiner, 1985), which should result in longer written responses to attributional questions. Whether a particular attribution is made may depend on the life domain (family or work), the locus of the cause (internal or external), and the direction of the deviation (advancement or delay). Taken together, the hypotheses represent a causal path implicit in the attribution-of-contrast model:

perceived atypicality → experienced surprise →
extended thought → polarized evaluation → unusual attribution.

In its simplest form, the attribution-of-contrast model involves independent stereotype effects for the work and the family domain. To make a judgment about a person's occupational attainments, for example, subjects may ask whether the person's developmental age matches his or her actual age in that domain and ignore the person's developmental age in the family domain. Alternatively, subjects may be sensitive to configurations of target persons being on-time or off-time across domains. The present design allows us to examine this question.

METHOD

Development of Materials

A pilot study was conducted to assess prevailing stereotypes about development in adulthood. In the first phase, 10 men and women were interviewed individually and asked to imagine typical 30-, 45-, and 60-year-old men and women. In a semi-structured procedure, subjects were encouraged to speculate about the typical person's situation in the areas of work and family. Interviews were tape recorded and analyzed by two judges. Based on these initial interviews, a banking career was selected to represent typical professional development because its age-related progress was clear and because there were fewer sex differences than in other middle-class occupations.

A questionnaire was constructed to obtain quantitative data on stereotypes about middle-aged people. Eighteen items referred to the person's family situation. They addressed, among other things, the person's marital status, his or her partner's age, the number and age of the children, leisure activities, and plans and concerns for the future. Ten items referred to the person's work situation (e.g., What kind of position does this person hold? When was the person promoted for the last time?). Also, the perceived degree of responsibility and power, and professional goals for the future were assessed.

The stereotype-assessment questionnaire was presented to a separate sample of 24 women and 20 men between the ages of 25 and 80 years. In a within-sex design, female subjects described the family and work situations of 30-, 45-, and 60-year-old women, and male subjects described the analogous situations for men. Average responses on interval-scaled questions (e.g., years married) and modal responses on categorical questions (e.g., leisure activities) provided the materials for the construction of the target descriptions for the main study. The pilot data suggested that the developmental age of the target persons could be effectively communicated through years of being married, number and age of children, position in the professional hierarchy, and financial goals. Table 1 shows the core elements of the descriptions used in the main study. Descriptions included age-relevant information (e.g., married for 17 years) and age-irrelevant information (e.g., makes weekend trips with the family).

Subjects

Ninety-three women and 92 men were recruited via newspaper advertisements in Berlin, Germany. Subjects varied in age from 25 to 80 years, and fell into four groups of roughly

Table 1. Abbreviated Content of the Target Descriptions of Target Persons Whose Developmental Age Was Young, Middle-aged, and Old

<i>30-year-old man:</i>	He has been married for 2 years; has a one-year-old child; works as a clerk in a bank; hopes to become a manager; spends time with the family; saves money for a bigger car and a house.
<i>45-year-old man:</i>	He has been married for 17 years; has 2 children (16, 14 years); is departmental manager in a bank; supervises 10 employees; goes out with his wife; works in the house; saves money for the education of his children.
<i>60-year-old man:</i>	He has been married for 27 years; has 2 children (26, 24 years), one grandchild (5 years); is branch director of a bank; supervises 30 employees; takes walks with the family; saves money for retirement.
<i>30-year-old woman:</i>	She has been married for 5 years; has a 4-year old child and expects to have another one; works as a clerk in a bank; hopes to get promoted; spends time with friends and family; saves money for a vacation and the improvement of her home.
<i>45-year-old woman:</i>	She has been married for 20 years; has 2 children (19, 17 years); is department manager in a bank; supervises 5 employees; makes weekend trips with her family; plans a long vacation; wants to help her children to get a good education.
<i>60-year-old woman:</i>	She has been married for 28 years; has 2 children (27, 22 years), 2 grandchildren; is branch director of a bank; supervises 15 employees; spends time with women-friends and with her husband; attends cultural activities in her town.

Note: This table shows only those descriptions where the developmental age was the same in the family domain and in the work domain. Descriptions where the developmental age varied across domains were constructed through rearrangements of the available information.

the same size (25–35, 40–50, 55–65, and 70–80 years). Subjects participated in groups of 4 to 18. Sessions lasted between 90 and 120 minutes. Each subject received 20 marks (about \$12) for participation.

Procedures and Dependent Variables

The experimenter explained that the study was designed to explore how people form impressions about the family and work situation of men and women. She then distributed booklets containing descriptions of target persons and the questionnaire. To avoid order effects, the sequence of presentation of the target descriptions was varied randomly. At the conclusion of the experiment, subjects were thanked and debriefed.

In the *experimental condition*, female subjects received descriptions of women, and male subjects received descriptions of men. For all descriptions, the target person's actual age was stated as 45 years, and information about the target person's current family and work situation was provided. The *developmental age* of the family and the work components of the description varied independently. Each component suggested the developmental age of either 30, 45, or 60 years. Thus, the design involved 9 different vignettes, all judged by each subject.

Subjects described their "first impressions of the presented person" in an open response format. In the experimental condition, they then (a) rated the person's overall typicality for middle-aged adults on a scale from 1 (very atypical) to 9 (very typical) and (b) judged whether the person appeared younger than 45 years, about 45, or older

than 45. In the control condition, subjects made a numerical estimate of the person's age. Next, all subjects rated how surprising (1 = not surprising, 9 = very surprising) the family-related and the work-related information was. Three kinds of evaluative ratings were made on 9-point scales. Subjects rated how much they liked the person, how much respect they felt, and how satisfied they thought the person was with his or her life. Liking and respect are global appraisals, and were thus rated once for each description. Satisfaction is more compartmentalized [see Lawler's (1983) review of research on job satisfaction], and was thus rated separately for the family and the work domain.

Subjects were then asked to express in their own words how they would "explain the person's current life situation. How did the described situation develop?" Ratings of four causal factors were collected on 9-point scales addressing attributions (a) to the target's personal control, (b) to the target's personality, (c) to the influence of powerful others, and (d) to general life-span circumstances (1 = minimal relevance of the causal factor, 9 = maximum relevance). Ratings were made separately for the family and work components of the descriptions.

The amount of spontaneous thought elicited by the target descriptions was quantified by a word count, performed on the first impressions and the open-format causal explanations. Counts by two independent raters were highly correlated across a sample of vignettes ($r = .99$ and $r = 1$ for the first impressions and the causal reasoning responses, respectively). The number of words written should be correlated with the number of thoughts thought. Counting thoughts is apt to be less reliable than counting words because it is less clear what constitutes a single thought.

RESULTS

Overview

The main goal was to determine whether age stereotypes affect person perception. Therefore, the first set of analyses included the three vignettes in which the family and the work component indicated the same developmental age. For each subject, information about one target person was congruent with the stereotype of mid-life development by being on-time in both domains (developmental age = 45 years). Information about the second target (developmental age = 30 years) was incongruent with the stereotype by being developmentally delayed in both domains. Information about the third target (developmental age = 60 years) was incongruent with the stereotype by being developmentally advanced in both domains. In the *control condition*, the same information was presented without the target's actual age, and subjects rated the information on the family and work domains separately. Thus, analyses involved a 2 (condition: experimental vs control) \times 3 (developmental age: young, middle age, and old) mixed design, with repeated measures on the second variable.

In addition to testing the attribution-of-contrast model, this research was designed to examine whether beliefs about development in the family domain and in the work domain contribute independently to stereotype effects or whether their effects interact. Therefore, another set of analyses was

conducted within the experimental condition. These analyses focused on matches and mismatches between development in these two life domains. The 3 (developmental age in the family domain) \times 3 (developmental age in the work domain) within-subjects design permitted examining judgments about target persons whose development was "out-of-sync" between domains.

Qualitative Findings and Manipulation Checks

Written impressions revealed that many subjects noted "normal," "average," or "typical" development when descriptions were age-appropriate and thus congruent with the stereotype of 45-year-olds. When there was a mismatch between actual and developmental age, responses were more outspoken. A few examples, translated from German, convey the flavor of these responses, showing the expected negative response to developmental delays and positive response to developmental advances. When development was delayed, women noted the person was quite "aged" given her life situation, that the timing of family and career were "wrong," or that it was "surprising that until recently she neither had children nor a career." Men noted that the delayed man was a "late developer," a "late bird," or that he "has been late in finding the right career and the right spouse." When development was advanced, women attributed confidence and satisfaction to the person and concluded that she "has everything that's valued by society." Men saw ambition and competence, noted the early marriage, and one subject mused, "This man is not a loser. If I were a woman, I would ask him to marry me."

Analyses of the quantitative data began with the question of whether the experimental manipulations of developmental age were successful. In the control group, mixed-design analyses of variance (ANOVAs) were performed on the age estimates, separately for the two life domains. Sex of target (and subject) and age group (25–35, 40–50, 55–65, and 70–80 years) were the between-subjects variables, and the target person's developmental age was the within-subjects variable. Throughout the Results section, η^2 will index the size of the significant effects (see Appendix, Note 2).

Results on *estimated age* in the control condition corroborated the pilot test. In the family domain, targets portraying young adults were rated as younger ($M = 27.6$) than middle-aged adults ($M = 42.6$), who in turn were rated as younger than developmentally old adults ($M = 54.9$), $F(2,144) = 1116.1$, $p < .001$, $\eta^2 = .93$. Both simple comparisons (Keppel, 1991) involving the mean estimate for the middle-aged target were significant ($p < .001$). In the work domain, age estimates for the three descriptions varied similarly with the age they were designed to convey ($M = 28.7$, 39.4, and 53.4 for young, middle-aged, and old descriptions, respectively), $F(2,144) = 535.3$, $p < .001$, $\eta^2 = .88$ (all simple comparisons with $p < .001$) (see Appendix, Note 3). Although descriptions were rated as younger than they were designed to be, the differences between the estimated age of young, middle-aged, and old descriptions were so large that it seemed safe to assume that young and old descriptions were incongruent with the stereotype of middle-age development.

In the experimental condition, where the stated age of the person was 45 years, subjects were asked whether, on the

basis of the description alone, they would have thought the person was 45 years old, younger, or older. When the person description was on-time, 71% of the subjects considered the person to be 45 years old. When the description was delayed or advanced, the person was seen to appear younger or older than 45 years by 66% and 61% of the subjects, respectively (all $p < .001$ by χ^2 test). Thus, the experimental manipulations successfully controlled differences in the perceptions of developmental age.

If subjects attended to the individuating information in the person descriptions, *typicality ratings* in the experimental condition should be low when the developmental age did not match the stated actual age. The ANOVA supported this prediction, $F(2,184) = 22.2$, $p < .001$, $\eta^2 = .19$. Forty-five-year-olds associated with old (advanced) descriptions ($M = 5.00$) or with young (delayed) descriptions ($M = 4.11$) were rated to be less typical for their age than 45-year-olds associated with middle-aged (on-time) descriptions ($M = 5.91$). Both simple comparisons involving ratings of the middle-aged target were significant ($p < .005$). Overall, female targets were rated as less typical ($M = 4.61$) than male targets ($M = 5.41$), $F(1,92) = 6.4$, $p < .02$, $\eta^2 = .19$ (see Appendix, Note 4).

Testing the Attribution-of-Contrast Model

The tests of the attribution-of-contrast model involved the measures of surprise, spontaneous thought, evaluation, and causal attribution. Tests were conducted through 2 (condition: experimental vs control) \times 2 (sex) \times 3 (age group) \times 3 (developmental age: 30, 45, 60) mixed-model ANOVAs where the last variable was within subjects. In all analyses, the critical question was whether there was the predicted interaction between condition and developmental age. Where appropriate, we performed simple-effects analyses and simple comparisons between individual means to examine whether the shape of the interaction was consistent with the attribution-of-contrast model.

Surprise. — According to the attribution-of-contrast model, stereotype-incongruent persons should be salient and elicit higher surprise ratings than would stereotype-congruent persons. Specifically, ratings of surprise should show the reverse pattern of ratings of typicality. The interaction between condition and developmental age was significant, $F(2,332) = 16.2$, $p < .001$, $\eta^2 = .09$. The simple effect of developmental age was significant in the experimental condition, $F(2,332) = 12.3$, $p < .001$. A simple comparison revealed that, as expected, advanced ($M = 3.96$) and delayed persons ($M = 4.75$) elicited greater surprise than did on-time persons ($M = 3.22$), $F(1,192) = 25.0$, $p < .001$. The simple effect was not significant in the control condition. The stereotype effect was stronger for family information than for work information. As shown in Figure 1, developmental delays in the family domain were rated as exceedingly surprising, resulting in a three-way interaction, $F(2,332) = 8.82$, $p < .001$, $\eta^2 = .05$.

Spontaneous thought. — The number of words written in first impressions and causal explanations served as a proxy for the amount of spontaneous thought. The prediction of the

attribution-of-contrast model was that subjects would write more about stereotype-incongruent than about stereotype-congruent persons. Responses regarding causal attributions supported this prediction, producing a significant interaction between condition and developmental age, $F(2,298) = 6.3$, $p < .01$, $\eta^2 = .04$. The simple effect of developmental age was significant in the experimental condition, $F(2,298) = 5.5$, $p < .01$. When thinking about probable causes of the presented life situations, subjects wrote more about developmentally delayed ($M = 15.47$) and advanced targets ($M = 13.16$) than about on-time targets ($M = 11.79$), $F(1,154) = 7.6$, $p < .01$. The simple effect was not significant in the control condition. In the omnibus ANOVA for first impressions, there was no stereotype effect, $F(2,312) = 2.3$, $p < .10$ (see Appendix, Note 5).

Evaluation. — Ratings of liking, respect, and satisfaction were collected as measures of target evaluation. Because the three variables were highly intercorrelated across person descriptions in both conditions (all $r > .94$), they were averaged to form a composite score. Means are displayed in Figure 2. In the ANOVA, the main effect for developmental age was significant, $F(2,326) = 24.8$, $p < .001$, $\eta^2 = .13$. The prediction of the attribution-of-contrast model was that evaluative ratings would vary more in the experimental condition than in the control condition. The interaction between condition and developmental age only approached significance, $F(2,326) = 2.6$, $p < .08$, but there was a three-way interaction with sex, $F(2,326) = 5.0$, $p < .01$, $\eta^2 = .03$. The attribution-of-contrast hypothesis was valid for women. In the experimental condition, the simple effect of

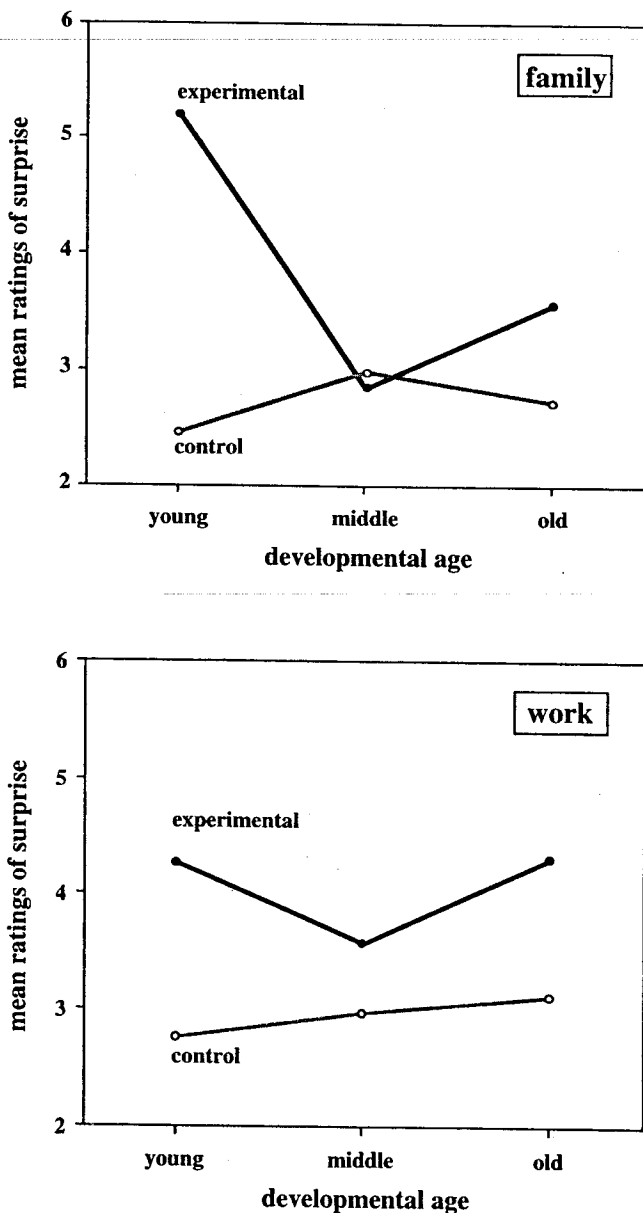


Figure 1. Mean ratings of surprise.

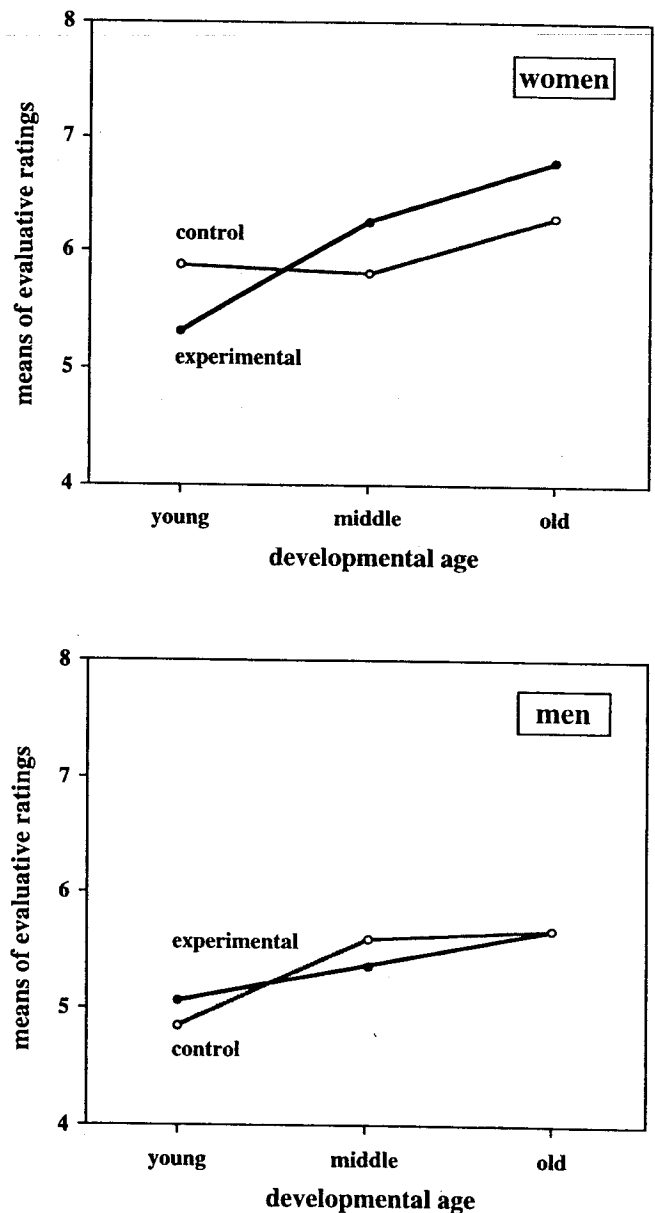


Figure 2. Means of evaluative ratings (composite of liking, respect, and satisfaction).

developmental age was significant, $F(2,326) = 23.1, p < .001$. Developmentally delayed women were evaluated less favorably than on-time women, $F(1,94) = 13.2, p < .01$. Developmentally advanced women were evaluated more favorably than on-time women, $F(1,94) = 4.1, p < .05$. No significant effects were found in the control condition for women or in either condition for men.

The open-format descriptions of first impressions and causal explanations were another source of data for the test of the attribution-of-contrast hypothesis. A trained coder scored all responses on a 5-point scale of evaluation (1 = negative, 5 = positive). To assess the coder's reliability, an independent coder rated the first impressions on 61 randomly selected vignettes, and he rated causal explanations for 55 vignettes. Inter-coder agreement was high for both variables ($r = .84$ and $.69$, respectively, both $p < .05$), so that the scores of the rater who coded all vignettes were submitted to an ANOVA. Again, developmentally older target persons were described more favorably than younger target persons, $F(2,294) = 28.2, p < .001, \eta^2 = .16$. More importantly, evaluations were more extreme in the experimental than in the control condition, $F(2,294) = 4.6, p < .02, \eta^2 = .03$. The simple effect of developmental age was significant in the experimental condition, $F(2,294) = 18.0, p < .001$. The average favorability of the two variables, first impression and causal thought, was higher for advanced ($M = 3.64$) and stereotype-congruent targets ($M = 3.56$) than for delayed targets ($M = 2.91$), $F(1,182) = 30.3, p < .001$. In the control condition, the simple effect was not significant.

Causal attribution. — On the basis of the attribution-of-contrast model, we expected attribution ratings to vary in the experimental condition but not in the control condition. The perception of personal (internal) control is the most prominent dimension in causal reasoning and thus deserved the closest scrutiny (Fiske & Taylor, 1991). Figure 3 shows mean ratings for the family and work domains for the three developmental ages in the experimental and the control condition.

Unusually early careers and late family development were seen as most controllable, as shown by a three-way interaction between condition, developmental age, and life domain, $F(2,326) = 3.4, p < .04, \eta^2 = .02$. In the experimental condition, rated controllability varied with the developmental age in the family domain, $F(2,326) = 8.4, p < .01$ and in the work domain, $F(2,326) = 7.8, p < .01$. In the family domain, more control was attributed to the delayed than to the advanced person, $F(1,190) = 11.4, p < .01$, and the reverse was found for the work domain. Here, attributions of personal control were greater for advanced than for delayed persons, $F(1,190) = 12.5, p < .01$. There were no differences in the control condition.

The pattern of results for attributions to targets' personality was similar to the results for attributions to personal control. However, the interaction between condition, developmental age, and life domain was not significant, $F(2,330) = 2.0, p > .14$. But there was an interaction between domain and developmental age, $F(2,330) = 5.8, p < .01, \eta^2 = .03$. For the family domain, personality attributions were similar for middle ($M = 6.23$) and old developmental

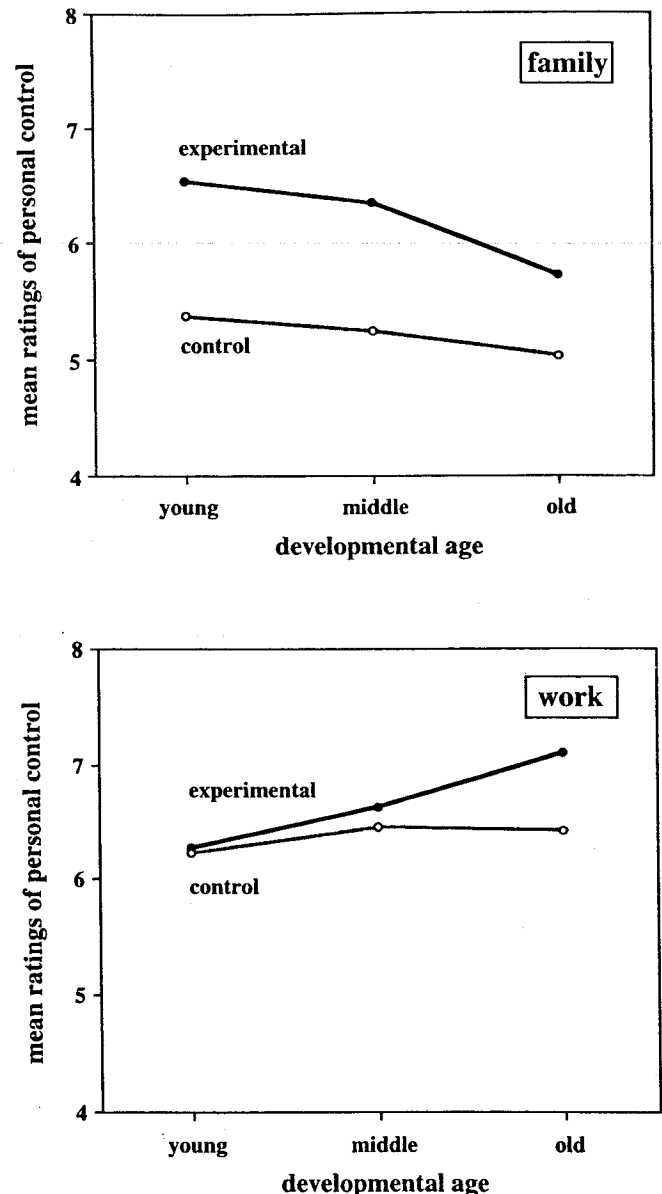


Figure 3. Mean ratings of personal control.

age ($M = 6.14$), but lower for young developmental age ($M = 5.60$), $F(1,330) = 15.5, p < .001$. There were no effects in the work domain.

Ratings of control attributed to powerful others showed an effect of developmental age. Powerful others were seen as more influential for developmentally older people ($M = 5.76$) or middle-aged ($M = 5.63$) than for young people ($M = 5.34$), $F(2,322) = 4.2, p < .02, \eta^2 = .03$. This variable also yielded the second stereotype effect. Here, condition and developmental age interacted with sex, $F(2,322) = 3.1, p < .05, \eta^2 = .02$. The life situation of apparently young (delayed) females in the experimental condition was less likely to be attributed to the influence of powerful others ($M = 4.98$) than the situation of advanced females ($M = 5.72$), $F(1,92) = 7.5, p < .01$. The mean rating for on-time females fell between the two means for the incongruent ones

($M = 5.68$). There were no other significant differences.

Nonspecific life circumstances also showed an effect of developmental age, $F(2,318) = 3.9$, $p < .03$, $\eta^2 = .02$. Circumstances were seen as less effective in the lives of developmentally middle-aged targets ($M = 4.74$) than in the lives of young ($M = 5.12$) or old targets ($M = 4.96$). Overall, the two external causes ("powerful others" and "general life-span circumstances," $M = 5.26$) were rated as less relevant for the explanation of target's life situation than the two internal causes ("personal control" and "personality," $M = 6.32$, $p < .001$).

Effects of the Two Life Domains

In the preceding analyses, information about a person's developmental age was synchronized across the two domains. Developmental age was advanced (or on-time or delayed) in the family domain and in the work domain. These analyses did not reveal how information about the two domains contributed to stereotype effects. In theory, there may be three classes of patterns in which information about the two domains is related to person ratings.

From pilot data we concluded that the developmental age in both domains is part of the stereotype of mid-life, and thus, both types of information should affect person ratings. In its simplest form, this pattern would involve *independent effects*. That is, there should be no interactions between the developmental age in the family domain and the developmental age in the work domain. When subjects rated the two domains separately (as was the case for ratings of surprise, satisfaction, and the four causal attributions), variations in the developmental age in the family domain should affect ratings in the family domain but not in the work domain. Conversely, variations in the developmental age in the work domain should affect ratings in the work domain but not in the family domain.

Alternatively, information about the two domains may have *interactive effects*. That is, the stereotype effect may be mediated by the degree to which the developmental ages in the two domains are incongruent. It is possible, for example, that a person who is developmentally advanced in the family domain and developmentally delayed in the work domain, is seen as more atypical than a person who is delayed in the family domain and advanced in the work domain. Finally, stereotype effects may arise only from incongruencies in one of the domains. If there were such *partial effects*, the observed stereotype effects would be narrower than expected.

To examine the empirical fit of each of the three patterns, the whole set of 9 vignettes in the experimental condition was analyzed in a series of 2 (sex) \times 3 (age group) \times 3 (developmental age: family) \times 3 (developmental age: work) mixed-design ANOVAs with within-subjects measures on the last two variables. This report addresses only the within-subjects variables. Subjects made one rating per vignette for some variables (i.e., typicality, liking, and respect), whereas for the others (i.e., surprise, satisfaction, attributions), they gave ratings specifically with regard to work and family life. According to the independent-effects hypothesis, there should be main effects for developmental age in both domains but no interactions. That is, effects should be domain-specific when subjects made separate ratings for the

family and work situation. Variations in the developmental age in the family domain should result in differences in the ratings of that domain. By the same token, variations in the developmental age in the work domain should result in differences in the ratings of that domain. According to the interactive-effects hypothesis, there should be interactions between the two domains. According to the partial-effects hypothesis, only one domain need yield a significant effect per rating variable.

The striking result was that there were no interactions between the developmental ages in the two domains. Thus, the interactive-effects hypothesis was rejected. For each significant main effect of domain, Table 2 shows the three means (for the delayed, the on-time, and the advanced target person), the F statistic, the level of significance, and the effect size. Inspection of the table shows that the independent-effects hypothesis received strong support and that the partial-effects hypothesis received partial support. Ratings of typicality and surprise could be accounted for by variations in the developmental age in the family domain. Variations in the developmental age in the work domain affected ratings of satisfaction in both domains.

DISCUSSION

The results of this study supported the attribution-of-contrast model. Stereotypic expectations about mid-life affected perceptions of and inferences about individuals who conformed to or deviated from age-related expectations. Stereotype-incongruent individuals were seen as less typical than congruent individuals, elicited more surprise, polarized evaluations, and led to more extensive search for causal attributions. On most measures, responses to developmental delays differed more from responses to on-time information than did responses to developmental advances. These effects were stronger for women than for men, and were more pronounced for the family than for the work domain. Finally, stereotypes about family development and work development were largely independent. That is, in judging a middle-aged person, subjects performed two orthogonal attributions of contrast.

The robustness of the stereotype effects was underscored by the fact that the experimental design provided conservative tests. In the experimental condition, information about the target person's actual age was a minor, non-salient cue compared to the substantial amount of person-specific information. The person's actual age could have been more easily overlooked than the comparatively long and vivid description of his or her life situation. Moreover, actual age was constant across the vignettes, whereas the individuating information varied. Generally, invariant stimulus features attract less attention than variable features in within-subjects designs (Kite & Johnson, 1988; Krueger & Clement, 1994; Smith & Zárate, 1992).

The lack of differences related to the age of the rater further supports the strength of the stereotype effects. There was no case where the age of the subject affected the critical interaction between the developmental age and the presence or absence of information about the person's actual age. These results extend the findings of Heckhausen et al. (1989) that different adult age groups share normative conceptions

Table 2. Means and ANOVAs for Ratings of On-time and Off-time Persons in the Two Domains

Variable (Source of Variance)	Delayed	On-time	Advanced	F	p-value	η^2
Typicality (FamAge)	4.17	5.76	5.03	33.5	.001	.28
Liking (FamAge)	5.81	5.67	5.66	5.6	.004	.06
(WorkAge)	5.20	5.58	5.81	10.9	.001	.11
Respect (FamAge)	5.23	5.73	5.67	7.8	.004	.08
(WorkAge)	5.28	5.47	5.86	6.9	.001	.07
Surprise about family life (FamAge)	4.43	2.79	3.61	42.2	.001	.31
Satisfaction with family domain (WorkAge)	6.02	6.15	6.47	5.1	.007	.06
Satisfaction with work domain (WorkAge)	5.44	6.33	6.75	31.2	.001	.26
Personal control in family domain (FamAge)	6.25	6.13	5.76	11.8	.001	.18
Personal control in work domain (WorkAge)	6.27	6.64	6.99	9.8	.001	.04
Personality in family domain (FamAge)	6.20	6.23	5.97	7.8	.001	.08
Personality in work domain (WorkAge)	6.44	6.40	6.87	6.4	.002	.07
Powerful others in work domain (WorkAge)	5.26	5.75	5.99	10.0	.001	.10
Circumstances in family domain (FamAge)	5.46	5.15	5.55	3.8	.025	.04

Note: FamAge = Developmental age in the family domain; WorkAge = in the work domain

about personality stability and change with remarkable consensus. The present research showed that this consensus generalizes to normative conceptions (stereotypes) about qualitative changes in the family and work life of middle-aged adults, and is reflected in the social perception of middle-aged adults.

Stereotyping, Evaluation, and Causal Attribution

The polarization of evaluations and the differences in causal attribution were the central findings in this study. The polarization of evaluations of stereotype-incongruent persons was predicted from Tesser's (1978) theory of self-generated attitude change. According to Tesser, evaluations of attitude objects become more extreme the more people think about them (see also Judd & Lusk, 1984). For the work domain, Kelley's (1972) causal schemas may explain how thinking about target persons polarizes evaluations. The age of a 45-year-old is an inhibitory cause for accumulating the professional merits that are attainable (if not expected) for a 60-year-old. The same age facilitates the accumulation of the merits of a 30-year-old. In the first case, the augmenting principle suggests that a person is viewed positively because he or she overcame the inhibitory cause of having had less time for development. In the second case, the discounting principle suggests that a person is viewed negatively because he or she did not rise above the accomplishments of a typical 30-year-old despite the ample availability of time. The attribution ratings supported this interpretation. Subjects attributed high personal control to the professionally ad-

vanced person, and low personal control to the professionally delayed person.

Kelley's causal schemas do not apply to the results in the family domain. Here, a developmentally advanced woman was evaluated positively but not considered to be as responsible for her situation as were on-time or delayed women. In other words, early family development was liked, yet considered to be incidental rather than planned. The positive ratings in this case suggest that subjects invoked family values favoring child-rearing, and these values may have overridden the premium placed on personal control. It should be noted that, while the early family development depicted in the experimental vignettes violated the stereotypic life-span clock, it did not violate the socially prescribed order of family growth. Despite their young developmental age, target persons became parents (more than 9 months) after they had married. Had the vignettes described socially problematic cases of unwed teenage parents, evaluations might have been less positive.

The independence of judgments about the family and the work domain sheds further light on the process of stereotyping. According to the hypothesis of interactive effects, stereotype effects would be greatest if the target person's development was out-of-sync across domains (e.g., advanced in family and delayed in work). Interactive effects would indicate that subjects rate a person depending on the specific configuration of the two developmental ages. There was no evidence for interactive effects. Instead, judgments followed a simple linear combination of two independent

assessments. It remained unknown whether subjects were aware of their judgment strategy. We, for one, expected certain interactive effects. At any rate, the independent linear combination of judgments is reminiscent of the most robust finding in clinical judgment. Although many clinicians claim that they diagnose a patient depending on complex configurations of features and signs, simple actuarial combinations of cues best predict eventual diagnoses (Dawes, Faust, & Meehl, 1989). Like clinical judgment, stereotype judgment is simple and easy to predict.

Age Norms and Age Stereotypes

The implications of the present findings for age norms and social stereotypes are twofold. First, many social norms involve proscriptions where sanctions follow transgressions. As the research on sex stereotypes by Costrich et al. (1975) showed, men and women are viewed most unfavorably when their behavior resembles the behavior expected of the opposite sex. With respect to age stereotypes, Neugarten et al. (1965) argued that the normative cultural clock for adult development creates pressures toward conformity, and that deviant development is penalized. According to Neugarten et al. (1965), violators of age norms are reminded of age-appropriate behavior and told to "act their age." In contrast, the present study suggests that violations of the expected timing of life-span events do not necessarily arouse suspicion or rejection. Instead, unusual advancements in life-span development are viewed particularly positively when evaluated in the context of a stereotype of gradual developmental gains. The direction of deviation in combination with the underlying developmental theory (gains vs losses) is critical for understanding whether social control is exerted through praise or blame, pride or shame. Age norms may be best understood as the age-normative background against which a deviating individual, for better or for worse, becomes figural.

Second, doubt was cast on Neugarten and Neugarten's (1986) suggestion that age norms are becoming irrelevant. An age-blind society would have to ignore a host of individual characteristics varying systematically with age. To expect this may be unrealistic. The present study demonstrated that people are sensitive to social clocks and that they use them to understand and judge others. The idea that age norms are fading is related to the claim that stereotypes in general are poor predictors of impressions about individuals. Locksley, Borgida, Brekke, and Hepburn (1980) suggested that the failure to use stereotypes in making judgments about individuals is an instance of the base-rate fallacy in judgments of probability. According to this view, stereotypic expectations do not affect ratings of individuals once a modicum of diagnostic person-specific information is available. Specific men or women who have acted assertively were rated as equally assertive, although subjects believed that in general men are more assertive than women (Locksley et al., 1980). More recent work has shown, however, that stereotypes do influence judgments about individuals, particularly when they involve large perceived differences between groups (e.g., men are seen as far more aggressive than women) and when the specific information about the individual is not highly diagnostic of a trait (Krueger & Rothbart, 1988; Kunda & Sherman-Williams,

1993). The present study too shows that stereotypes affect person perception when individuating information is present. It shows how the relevance of person-specific information can increase due to a mismatch with stereotypic expectations.

Caveats

Because subjects and target person were of the same sex, it remains to be seen whether there are stereotypes effects in women's judgments about stereotype-incongruent men and men's judgments about stereotype-incongruent women. Nevertheless, the present procedure tested the attribution-of-contrast model conservatively. In general, out-groups tend to be perceived as more homogeneous than in-groups (e.g., Judd & Park, 1988; Linville, Fischer, & Salovey, 1989). The complexity-extremity account of this phenomenon is that people are evaluated more extremely by out-group members than by in-group members (Linville, 1982). Hence, ratings across sex might yield even stronger polarization of evaluation than the within-sex effects that we observed.

The present paradigm included a subset of the possible experimental variations. Whereas the direction in which atypical middle-aged persons deviated from the stereotype was varied, the degree to which they deviated was held constant. It is conceivable that differences in developmental pace of less than 15 years would not produce polarized evaluations. Research in human judgment (Sherif, Taub, & Hovland, 1958) and intergroup stereotyping (Wilder & Thompson, 1988) has shown assimilation effects when two judgmental targets are similar. It remains to be seen whether evaluations of 45-year-olds who appear to be 40 or 50 years old (instead of 30 or 60) are assimilated to evaluations of typical 45-year-olds, instead of being polarized away from it. In contrast, people who deviate by more than 15 years from the expectations associated with their age group may elicit disbelief or suspicion rather than surprise and polarized evaluation. The role of the degree of stereotype incongruence is a promising task for future research.

The dependent variables in this research were arrayed according to a hypothetical causal order suggested by the attribution-of-contrast model. It was expected that perceptions of person atypicality cause surprise, which causes extended thinking, which causes polarized evaluations, which causes unusual attributions. As noted earlier, experimental evidence for the causal flow at the various junctures in the model is scattered throughout the literature. The present research did not provide an omnibus test, however, of the causal relations among the dependent variables. This too, is a promising task for future research.

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(Continued on next page)

Appendix

Notes

1. Beliefs about development during adulthood involve perceptions of both growth and decline. Most people expect personal growth to outweigh decline up to the age of about 60 years (Heckhausen et al., 1989). Therefore, we predicted evaluations to improve with higher developmental age alone (control group), which is the baseline for more extreme evaluations when target persons are incongruent with the stereotype (experimental group).

2. The index of effects size, η^2 , is "the proportion of the total superpopulation variance made up by the variance of the population means" (Cohen, 1988, p. 281), or $\eta^2 = \frac{\sigma_m^2}{\sigma^2 + \sigma_m^2}$, where σ_m^2 is the variance of the means, and σ^2 is the variance within the populations.

3. This effect was qualified by an interaction with the sex of the targets (and subjects), $F(2,144) = 4.2, p < .02, \eta^2 = .55$. Estimates made by females about the developmentally old woman ($M = 54.90$) were higher than the age estimates made by males about the developmentally old man ($M = 51.83, p < .01$).

4. With one exception, on-time target persons were rated as more typical than incongruent persons. Female subjects aged 55 to 65 years rated advanced women as typical as they rated on-time women, resulting in a significant interaction between age group, sex, and developmental age, $F(6,184) = 2.32, p < .04, \eta^2 = .07$.

5. The predicted pattern was consistent, but it was less clear among old female subjects, resulting in an interaction between sex, age group, developmental age and condition, $F(6,298) = 2.19, p < .05, \eta^2 = .01$.

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